EFFECTIVENESS OF FOOT REFLEXOLOGY ON REDUCTION OF PAIN AMONG POST OPERATIVE CAESAREAN MOTHERS IN SELECTED HOSPITALS AT DINDIGUL DISTRICT.

A DISSERTATION SUBMITTED TO
THE TAMILNADU DR.M.G.R. MEDICAL UNIVERSITY,CHENNAI,
IN PARTIAL FULFILMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
MASTER OF SCIENCE IN NURSING.

APRIL – 2015

A QUASI EXPERIMENTAL STUDY TO EVALUATE THE EFFECTIVENESS OF FOOT REFLEXOLOGY ON REDUCTION OF PAIN AMONG POST OPERATIVE CAESAREAN MOTHERS IN SELECTED HOSPITALS AT DINDIGUL DISTRICT.

Ms.SHEELA MARY.S

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CERTIFICATE

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EXAMINERS

1. _____

2. _____

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TABLE OF CONTENT

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDIX

ABSTRACT

A Study was conducted "to assess the effectiveness of foot reflexology on reduction of pain among post operative caesarean mothers in selected at Dindigul district" was done by **Ms.Sheelamary.S** as a partial fulfilment of the requirement for the Degree of Master of science in Nursing to the Tamilnadu Dr.M.G.R. Medical University, Chennai during the year 2013-2015.

The objectives of the study were to assess the pre test and post test level of post operative pain among postoperative caesarean mothers in experimental group and control group,to evaluate the effectiveness of foot reflexology on reduction of post operative pain among post operative caesarean mothers in experimental group andto associate the level of post operative pain among post operative caesarean mothers and their selected demographic variables. In this study a quasi experimental non equivalent control group pretest- posttest design was adopted. Non probability purposive sampling technique was used to select each 30 samples in experimental and control group equally. Structured interview schedule was used to collect the demographic variables and visual analogue scale (wong baker scale) was used to assess the level of post operative pain.Experimental group receives intervention of foot reflexology for 15 minutes twice a day for 5 days.

The result shows that, in experimental group, majority 17(56.7%) of the post operative mother belonged to the age group of 21-25 years,27 (90%) of them belonged to Hindu religion, 12(40%) of them had higher secondary education, 24(80%) were housewives, 13(43.3%) of them monthly income 6001-9000, 24(80%) samples had no experience of delivery in the past, 25(83.3) samples had no experience of caesarean section in the past.

In control group, majority 20(66.7%) of the post operative mother belonged to the age group of 21-25 years,27 (90%) of them belonged to Hindu religion, 14(46.7%) of them had higher secondary education, 22(73.3%) were housewives,20(66.7%) of them monthly income 6001-9000, 17(56.7%) samples had no experience of delivery in the past, 21(70%) samples had no experience of caesarean section in the past.

Level of post operative pain in the morning control group the pre-test scores on the day 1 level of pain were 30(100%)had severe pain respectively. Whereas in post-test scores also30(100%) had severe pain. Pre test score on the day 5 level of pain were 26(87%) had moderate pain, 4(13%)were mild pain. Whereas in post test scores on the level of pain were 6(20%) had mild pain,27(80%) had moderate pain.

Level of post operative pain in the evening control group the pre-test scores on the day 1 level of pain were 28(93.3%)had severe pain,2(6.7%) had moderate pain respectively. Whereas in post-test scores on the level of pain 26(87%) had severe pain, 4 (13%) had moderate pain respectively. Pre test score on the day 5 level of pain were 2(7%) had severe pain, 27(90%) had moderate pain and 1(3%) had mild pain. Whereas in post test scores on the level of pain were1 (3%) had mild pain, 27(90%) had moderate pain and 2(7%) had severe pain. The finding reveals that the levels of post operative pain among post operative caesarean mothers were decreased in experimental group than control group.

Level of post operative pain in the morning experimental group the pre-test scores on the day 1 level of pain were 30(100%) had severe pain respectively. Whereas in post-test scores on the level of pain 10(33%) had mild pain, 20(67%) had moderate respectively. Pre test score on the day 5 level of pain were 15(50%) had moderate pain, 15(50%) were mild pain. Whereas in post test scores on the level of pain were 1(3%) had no pain, 27(90%) had mild pain, 2(7%) had moderate pain

Level of post operative pain evening experimental group, the pre-test scores on the day 1 level of pain were 29(97%)had severe pain, 1(3%)had moderate pain respectively. Whereas in post-test scores on the level of pain10 (33%)had moderate pain, 20(67%) had mild pain respectively. Pre test score on the day 5 level of pain were 13(10%) had moderate pain, 27(90%)were mild pain. Whereas in post test scores on the level of pain were 3(10%) had no pain,27(90%) had mild pain

In comparing of morning experimental and control group calculated‘t’ test value for 1st day pain was15.48, 2nd day pain was 12.62, 3rd day pain was10.48, 4th day pain was 10.03 and 5th day pain was 9.25. Overall 5 days‘t’ test values are highly

significant at P<0.001 level. Hence H_1 is accepted. It can be concluded that foot reflexology was effective in reducing the post operative pain among post operative cesarean mothers.

In comparison of evening experimental and control group calculated't' test value for 1st day pain was16.88, 2nd day pain was 16.51, 3rd day pain was15.01, 4th day pain was 14.77 and 5th day pain was 19.01. Overall 5 days't' test values are highly significant at P<0.001 level. Hence H_1 is accepted. It can be concluded that foot reflexology was effective in reducing the post operative pain among post operative cesarean mothers.

There was a significant difference between the level of post operative pain among post operative caesarean mothers and their demographic variables such as religion at p<0.05 level and occupation at p<0.01 level. Hence research hypothesis H_3 is retained for religion and occupation in morning control group.

There was no significant difference between level of post operative pain among post operative caesarean mothers and their demographic variables such as Age, Religion, Educational status, Occupation, Income of the family, Number previous deliveries and Number previous caesarean section in the morning and evening experimental group and also evening control group.Hence research hypothesis H_3 will be partially accepted.

CHAPTER – I

INTRODUCTION

CHAPTER-I

INTRODUCTION

''Pain is an elusive and complex phenomenon and despite its universality its exact nature remains a mystery''. ***- Black.mj***

Motherhood is a gift for every woman. Pregnancy and birth are a unique experience. The physiological transaction from pregnancy to motherhood occurs in each woman physically and psychologically. During pregnancy, the women and fetus prepare for labour process. The labour process is an exciting and anxious time for woman. In a relatively short period, they experience one of the most profound changes in their lives.

Pregnancy is a special event not only in the life of women but also to the entire family, where change occurs early to provide a favourable outcome for both mother and fetus. During pregnancy changes happen in the body to prepare for the events of labour. The ligaments of the pelvis loosen to permit the pelvis to relax and allow the baby to come out. Other changes occur to adapt the body to accommodate childbirth.Pregnancy is the most exciting period of expectation and fulfillment in women's life. Pregnancy and child birth is a great event in the life of every women for which she aspire and longs for with great expectation.

Labour is said to start when the women get regular contractions. Contractions increase in frequency and intensity throughout labour and become painful in a similar way as the women may experience pain in other muscles in her body when she does vigorous exercise. The delivery of a baby goes through the process of labour. Labour is the series of events by which uterine contractions and abdominal pressure expel the fetus and placenta from the woman's body.

Childbirth is one of the most marvelous and memorable segment in a woman's life. It does not really matter if the child is the first, second or the third one. Each experience is unique and calls for a celebration. The fear, pain, physiological changes and anxiety about childbirth often prevents most women from enjoying this experience. It is very important to communicate hopes or fears about labour and delivery with your doctor, based on which critical decisions can be made in the best interest of the mother and child.

Caesarean section is a major surgical procedure that increases the likelihood of many types of harm for mothers and babies in comparison with vaginal birth.The national caesarean section rate is much higher and it steeply increasing over morethan a decade,it leveled off at 32.8% in 2010 and 2011.Cesarean section is a surgical procedure used to deliver an infant by an incision on the abdomen and uterus. C-section is an alternative option to vaginal delivery. This alternative option is exercised based on the health status of the mother and child at the time of labor. About 32 percent of mothers prefer planned surgical deliveries. Hence, the outcome of a normal pregnancy can be achieved either through a vaginal delivery or a C-section.

Caesarean section is one of the most commonly performed abdominal operations on the women throughout the world with incidence of 20-25% in many developed countries.Births by caesarean sections, many of them unnecessary, have started to increase, globally**.** Statistics from public health department bears out the popularity of the caesarean section in the private sector which the middle classes prefer. In 2010, 1.83lack children were born in various public and private hospitals. Almost 17% of these births were via caesarean section.

The immediate post partum period most often occurs in the hospital setting, where the majority of women remain for approximately two days after a vaginal delivery and 3-5 days after a caesarean delivery, during this time, women are recovering from their delivery and are beginning to care for the newborn. This period is used to make sure the mother is stable and to educate her in the care of her baby especially the first time mother.

Lewis.SL-2007Post operative pain is caused by the interaction of number of physiologic and psycho logic factors. The skin and underlying tissue have been traumatized by the incision and retraction during the surgery. Postoperative pain can complicate and delay patient's recovery, lengthen hospital stays and costs, and interfere with a patient's return to activities of daily living. In many people, pain medications can have unpleasant side effects.

Pain is one of the major discomforts which drives post C-section mothers to seek help. C-section do not eliminate the pain of labor, they often do not eliminate the pain of delivery either. In vaginal deliveries mothers experiences sever pain before the delivery of the baby and to some extent up to 2-3 days after delivery in case of episiotomy. Where as in case of C-section, it is easier to undergo but the after pain is much worse .The numbness around the incision and occasional aches and pain can last for several months. Not only has that it also interfered with mother-infant interaction. If the mother is comfortable easier it will be to breast feed the baby and can also involve in newborn care.

Many measures are used to reduce post LSCS discomfort; the quick and easier method people go for is the use of anti-emetics to reduce nausea, vomiting and analgesics to reduce pain. Pain relief medications reduce pain but cause a variety of

unpleasant side effects. But we cannot even neglect these discomforts as it may cause serious effect on physical and psychological aspect of post C-section mothers. There are some simple, effective, low cost methods to reduce post LSCS discomfort, they are the non-pharmacological methods. Midwives can help post C-section mothers in reducing the discomforts by using non-pharmacological measures.

Alternative and complimentary therapies are commonly used treatment modalities in present days as it does not have side effects and also it is effective. These are a group of therapies and practices used in place of conventional medicines or used together with conventional medicines, for the purpose of increasing comfort or relaxation, maintaining, improving or restoring health and harmony of the body, mind, and spirit, improving coping mechanisms, reducing stress, relieving pain and/or increasing the client's sense of wellbeing.

Reflexology is a sensational, dynamic yet simple approach to growing health. Touch could induce pain relief by activating the large beta afferent nerve fibers from receptors in the skin as they connect with the cells in dorsal horn of the spinal cord. Stimulation of these fibers by stroking skin has been found to affect the activity of these nociceptive cells in the dorsal horn close the gate on the barrage of painful stimuli reaching the brain.

Stimulation of reflex point in the feet is a relaxing treatment which is the concept of reflexology. Reflexology is a powerful healing practice based on the premises that our entire body is mirrored on the feet through a system of reflexes. The stimulation of reflex points on the feet stimulates the release of endorphins from the pituitary gland (in the brain) which is the body's natural pain killer and it promotes a healing response in every organ, glands and body system. The alternate pressure used

in reflexology stimulates not only the nerve, but also the skin and underlying cellular tissue increasing the blood flow resulting in more oxygen to the cells. When performed by a trained reflexologist on foot in the form of massage which provides many benefits to the patient and helps in reducing discomfort. Reflexology is very effective which causes rest and relaxation, and therefore alleviates and helps prevent illness.

The body is treated as a holistic unit and applying pressure to specific points on the foot is used to reconnect the energy pathways throughout the body and helps in reducing the discomfort Perhaps the most immediate benefit of getting a reflexology foot massage is to relieve physical and mental tension of an individual. The aim of a reflexology foot massage is to unify mind, body and spirit in a state of relaxation and healing.

According to an August 2010 article from "applied nursing research", reflexology can help with post operative pain. Dr. N.Degirmen& colleagues evaluated pain levels in patients who had undergone caesarean section. Somewhere given reflexologytreatments while others were given standard care. They discovered that those women who received reflexology had less post operative pain. These women also had stronger vital signs than the control group.

A study done in NewDelhi, India to know the effectiveness of foot reflexology on pain among post operative patients showed that there was a 50% reduced use of analgesics in the experimental group where foot reflexology was used for pain control, against the control group were only analgesics were administered. The study concluded that foot reflexology was effective in reducing post operative pain.

NEED FOR THE STUDY

"Nobody can go back and start a new beginning ,but anyone can start today and make a new ending" **-Maria Robinson**

Child birth is one of the greatest events in every woman's life. It is the fulfilment of their dreams.Though it is the happiest event in every woman's life, the process of child birth is a painful event. Pain is a complex, multifaceted phenomenon. Pain varies among individual, with a unique experience that may be difficult to describe or explain and often difficult for others to recognize, understand and assess.

Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage. In the natural environment pain serves as a mechanism to warn us about the potential for physical harm.Thus pain is the body's protective mechanism to prevent further damage by providing the impetus to withdraw from the pain producing situation.

As like any surgery, there is usually some degree of pain and discomfort the mother will have after a caesarean section. Right after, the caesarean section the mother may feel itchy around the incision, sick to her stomach, and sore, these are all normal reactionstothe anesthesia and surgery. If general anesthesia is needed for an emergency caesarean section, mother may feel confused, chilly, scared, alarmed, or even sad. Some may also experience a number of effects including confusion, trembling and drowsiness.Stomach discomfort is also a common effect after a caesarean section. This can include pain in the abdominal area as well as constipation.For the first few days and even weeks, patient may feel, tired have

soreness around the incision, constipated and gassy, have a hard time getting around and/or lifting the baby.

In the last few decades, the caesarean rates have increased dramatically in the developed world. Among developing counties like Brazil and China also, the caesarean section rates have sky-rocketed. Currently 1 out of every 10 American women delivered by caesarean section each year. In United States more than 825,000 women are delivered by caesarean .India is also experiencing a rapid increase in C-section deliveries along with an increase in institutional deliveries. Caesarean section rates increased from 25.4 percent to 32 percent and about 32.6 percent has been documented from in South India.

Over the years, mankind had devised many methods to combat pain. Pain relief methods can be divided into two main groups: pharmacological and non-pharmacological ones.Post operative pain is routinely poorly controlled by pharmacological means alone. Complementary strategies based on sound research findings are needed to aid in post operative pain relief as patients routinely report mild to moderate pain even though pain medications have been administered. One of the most significant limitations associated with pharmacological pain relief is that almost every drugs used as analgesics has got a deleterious effects over mother.Analgesics have a maximum effective dose, increasing the dose cannot decrease pain relief, but may increase the side effects.

A clinico endoscopic histo pathological study was conducted in Kings George Medical College on effect of commonly used non steroidal anti-inflammatory drugs (NSAIDS) on gastric mucosa. It was found that all these drugs were known to produce gastro intestinal lesions. Here they found that Aspirin,

Endomethacin and Phenylbutazone caused gastric mucosal damages in 33.3%, 37.5% and 15% of the population respectively. Although using analgesia is usual to relieve pain, its complication, unavailability, necessity of taking low dose drug, and also ineffectiveness of using analgesia alone, to relieve pain has focused today's nursing system on complementary treatments and non pharmacological interventions.

Complementary and alternative therapies are the fastest growing areas of healthcare. The main difference between conventional medicine and complementary medicine is the inclusion of the emotional, spiritual, and physical components of well-being; complimentary methods utilize the client's own energy to enhance the healing potential. The inclusion of complimentary therapies in maternity care vastly increases the choices available to women throughout pregnancy and childbirth **(Tiran & Mack,)**

There are some alternative therapies to reduce post operative pain without causing any adverse effects. Few scientific studies have been done in this area, many women have reported benefits from acupressure, acupuncture, various herbal remedies, and hot application, yoga and foot reflexology. Among these complimentary therapies foot reflexology has found to be effective and commonest method used to relieve pain.

Reflexology is an act of applying pressure on the corresponding point of disordered organ or area of body to the feet and hands using specific thumb, finger and hand techniques. The physiological changes achieved with the application of pressure are based on the neurological relationship that exists between the skin and the nervous system, in such a manner that a therapeutic effect can be achieved by

stimulation at a distance from the area where the pressure is applied. Reflexology believes the body is mirrored on the feet and hands and works within a zonal system. Reflexology works as the pressure techniques applied to the feet or hands interact as a part of the body's nervous system creating relaxation, improved circulation, and exercise of the nervous system and the benefits of touch. Stretch and movement techniques are utilized as "desserts" to provide relaxation to the foot.

Reflexology is one of the most miraculous means of utilizing nature's own healing method. It does not require any pills or drugs. In each foot there are more than 7200 nerve endings which have an extensive interconnection with the central nervous system. These nerve endings are a part of our sensory apparatus in which they sense pain and pressure. The feet are also important in perception, sensing or determining the physical position of a person. Essentially reflexology stimulates or fine tunes this sensory apparatus and its neural pathways. There are many theories of reflexology; the important theory associated with pain is the gate control theory.

DrAtefeh Ghanbari,2011 conducted a clinical trial study to investigate the effect of foot reflexology on pain and physiological parameters after caesarean section at Alzhara Hospital (Rasht City) Iran, and 62 women were included in the study. They were randomly divided into two groups of case and control. The reflexology group received a 30 minute foot massage in two sessions, with 24 hours interval. The researchers analysed the end results with the help of step- visual analogue scale and pain score form. Findings of the study concluded that in case group, severity of pain after first stage of foot reflexology was significantly lower than before reflexology session and also in control group respectively($p<0.001$,$p<0.001$).The severity of pain after second stage was

significantly reduced in case group when compared with control group. The researchers concluded that foot reflexology appears to be a useful method for reducing postoperative pain.

Kevin Kunz et al,2006 conducted an experimental study to determine the effect of reflexology in patients with Post operative pain after general surgery including caesarean section at All India Institute of Medical Science in New Delhi. The sample size was 60 patients and they were randomly divided into 30 each. Group I: Reflexology group , Group II: Control group . Pain score was measured by monitoring the strength of pain on visual analogue scale. Findings of the study revealed that there is a significant decrease of requirement and quantity of drugs in Group I and also a significant decrease of pain score in Group I in comparison with Group II. The study concludes that there is a positive correlation between the foot reflexology and postoperative pain.

The investigator as a midwife during her clinical experience period has come across many women suffering from agonizing pain and discomfort during post caesarean section. Investigator found that mothers who have undergone caesarean section suffered from pain and discomfort while feeding the baby nausea and vomiting due to the adverse effects of analgesics also pain while moving and walking. On investigating the investigator found majority of women like to receive non-pharmacological pain relief strategies and avoid pharmacological measures. The depth of review and the information available about the new advancing alternative therapies to manage pain made the investigator to double her interest towards the use of foot reflexology to relieve pain among women who have undergone caesarean section.

STATEMENT OF THE PROBLEM:

A quasi experimental study to evaluate the effectiveness of foot reflexology on reduction of pain among post operative caesarean mothers in selected hospitals at dindigul district.

OBJECTIVES:

- To assess the pre and post test level of pain in post operative caesarean mothers among experimental & control group.
- To evaluate the effectiveness of foot reflexology among post operative caesarean mothers in experimental group.
- To find out the association between the effectiveness of foot reflexology on pain among post operative caesarean mothers and their selected demographic variables.

HYPOTHESIS:

- **H_1:** The mean post test level of pain will be significantly lower among post operative caesarean mothers in the experimental group than their pretest level of pain.
- **H_2:** The mean post test level of pain of post operative caesarean mothers in experimental group will be significantly lower than the control group.
- **H_3:** There will be a significant association between the level of pain among post operative caesarean mothers and their selected demographic variables.

OPERATIONAL DEFINITIONS:

Effectiveness:

In this study effectiveness refers to the extent to which reflexology has achieved desirable change in pain level measured by visual analogue scale.

Foot reflexology:

It is an alternative medicine involving the physical act of applying pressure to the feet with specific thumb finger and hand technique without the use of oil or lotion.

Pain:

Pain is the feeling of discomfort at the surgical site experienced by the post operative caesarean mother and is evidenced by visual analogue scale.

Post operative caesarean mothers:

Post operative caesarean mothers are those who have undergone caesarean section during 0-5th post operative days.

ASSUMPTION:

- Post operative caesarean mothers will experience pain after lower segmental caesarean section.
- Intensity of the pain can be measured by visual analogue scale.
- Complementary therapy like foot reflexology may help to reduce the level of pain

DELIMITATION:

The study was limited to

- who had under gone caesarean section
- who are in 1-5th post operative day

PROJECTED OUTCOME

- This study will be able to evaluate the effectiveness of foot reflexology on reduction of pain among post operative caesarean mothers.
- Non pharmacological approaches incorporating traditional method
- Reflexology helps to reduce the level of post operative pain.

CHAPTER - II

REVIEW OF LITERATURE

CHAPTER II

REVIEW OF LITERATURE

A literature review involves the systematic identification, location, scrutiny and summary of written materials that contain information on a research problem. **(Polit and Beck, 2010)**

It provides basis for future investigations that justifies the need for the study, throws light on the feasibility of study. This chapter has review of studies done, methodology adopted and conclusion obtained by other investigator which helps to study the problem in depth. The sources obtained are mostly from textbooks, journals and internet searches.

The literature review related to this study was discussed under the following headings;

- Studies related to reducing post operative pain among caesarean mothers
- Studies related to effectiveness of foot reflexology in reducing pain on caesarean mothers

Studies related to reducing post operative pain among caesarean mothers:

Sondra vander Vaart (2014) conducted a randomized double blinded study to determine effect of distant Reiki in reducing pain after elective caesarean section.80 samples were participated in this study, whereas 40-control group,40 – experimental group. Pain was assessed using a visual analogue scale (VAS). The intervention group received usual care plus 3 distant Reiki sessions, one each morning about 30 minutes. After analysis of data distant reiki group had 52%in perceiving pain

whereas in control group 55% in perceiving pain. This suggests that the therapeutic benefit of Reiki for pain observed.

Hanan A.,(2014) conducted a experimental study to investigate the utilization of natural measures on relieving post cesarean incision pain. The study design is an intervention study design. The study sample involved 150 mother divided into 75 mother as control group who received post cesarean section hospital routine analgesics for pain relief and 75 as intervention group who received foot and hand massage for 20 minutes. They were randomly selected from Ain Shams Maternity University hospital. Tools used for data collection were a structured interviewing questionnaire sheet, a numerical rating scale and short form McGill pain questionnaire. The results showed that, there is statistical significant difference between two groups only, regarding post caesarean pain as 53.3% of control group reported. 32% of intervention group reported. The study concluded that there is effectiveness of foot and hand massage on relieving post cesarean section pain.

C. S. L. Chooi (2013) conducted a randomized control study to determine the comparison between pain scores with comfort scores and how the technique of pain assessment affects patient perceptions and experiences after caesarean section.300 samples were randomly selected.One Group women were asked to rate their pain on a 0–10-point verbal numerical rating scale The verbal numerical rating scale pain scores was higher than comfort scores at rest, 2 (1, 4) *vs* 2 (0.5, 3), and movement, 6 (4, 7) *vs* 4 (3, 5).Group P women were more likely to be bothered by their Caesarean section, had greater VNRS 'Bother' scores, 4 (2, 6) *vs* 1 (0, 3), perceived postoperative sensations as 'unpleasant' [relative risk (RR) 3.05, 95% confidence interval (CI) 2.20, 4.23], and related to tissue damage rather than healing and

recovery 95%, *P*=0.001. Group P women were also more likely to request additional analgesia95% , *P*<0.001.Results shows that asking about pain and pain scores after Caesarean section adversely affects patient reports of their postoperative experiences.

Ismail et al (2012) conducted a observational study to assess the effectiveness of postoperative pain management of patients undergoing elective cesarean section in the obstetric unit of hospital,USA.263 samples were selected by using convenient sampling. One hundred and eleven patients (42%) received general anesthesia while 152 patients (57%) received spinal anesthesia for elective cesarean section. The postoperative analgesia regime was started by the obstetric team in 81% of patients and in rest by the anesthesia team. The pain management was done by obstetric team in 94% and rest by the acute pain management service. Analysis of overall pain score since the time of surgery showed mild pain (VAS 0–3) in 89.7%, moderate pain (VAS 4–6) in 9.5%, and severe pain (VAS 7–10) in 0.8% of patients at rest. On movement, pain score was mild in 60.1%, moderate in 33.1%, and severe in 6.8% of patients. Study concluded that the postoperative pain management was adequate in terms of patients' safety, it was not effective. We recommended expanding the services of acute pain service**s.**

Buhagiar (2011) conducted a experimental study to investigate the preoperative electrical and pressure pain assessment can predict post caesarean section pain and analegesic requirement.65 subjects were selected for data collection.pre operativelypain matcher was ysed to evaluate electrical pain thresholdand FPX 25 algometre determined pain tolerance.post operatively numerical pain rating scale were used to assess pain.patients received pain relief medications.correlational and regression statistics were used.a significant correlation

was observed between morphine requirement and 1)electrical pain threshold(45%)2)pressure pain threshold(41%)3)pressure pain tolerance(44%).the dose of morphine consumed within 48h of surgery decreases 0.9mg for every unit.the study concluded that the predictive power of pain sensitivity assessments may portend caesarean requirements.

Sousa(2009) conducted a descriptive study to measure and characterize post cesarean section pain and to verify its relationship with limitations of physical activities in t the Maternity Hospital,Brazil.60 samples selected from who were in the post-operative period of cesarean section. Pain was measured with both the Numeric Scale and the McGill Pain Questionnaire. After that, the parous women were questioned as follows about the Numeric Scale. The study represents pain in parous women who went through a cesarean section was characterized as rhythmic (50%), continuous (45%) and brief (5%). For 75% of the participants, the pain was located around the surgical section area and for 41.7%, it was described as mixed, that is, felt in a superficial and deep way. conclude that the pain presented by the study participants was moderate, and more intense when sitting down and standing up, followed by walking and rest. Future studies are necessary to assess pain relief resources, making the puerperal phase more comfortable.

AbdoRanda(2008) conducted a quantitative study to evaluate the associations of several factors with postoperative pain in women undergoing Caesarean Section. Convenience sampling is used in this study; They were 300 ladies. Questionnaire was used to collect the data and it filled out 8 hours after full recovery (during 24-48hrs).Data analyzed by using descriptive and inferential statistics. A high percentage

of 75.7% represents pain severity (6-10) on Visual Analogue Scale post caesarean section in this study; this result requires more attention for pain management.

Nikandish Reza et al(2007) conducted a double blind placebo-controlled trial study to assess the impact of music on postoperative pain and anxiety following cesarean section in Iran.100 women were selected and randomly allocated into two groups of 50.One group received music therapy. Post operative pain evaluated by visual analog scale (VAS) up to six hours. Descriptive statistics are used for the analysis.80% of mothers had reduction in the level of pain severe to moderate 19 % had moderate to mild pain in experimental group. This study concluded that music therapy is most effective for reduction of post operative pain.

Kolawale.I.K(2007) conducted a descriptive study to assess post operative pain management following caesarean section in university of Ilorin teaching hospital, Nigeria.88 samples were participated in this study.pain assessment was carried out by direct questionning method 4-point verbal rating scale.pain assessed after caesarean section.after analysis of data results shows that most of the mothers(95%) experienced some degree of pain in the immediate post operative period.the79% of the mothers had moderate to severe pain after 24 hours of surgery and day 1.85.2% of the patients had satisfied with pain reflief method.this study concluded that patient's pain remains significant after caesarean section.

Karlstrom A (2007) conducted a descriptive study to assess women's experience of post operative pain and pain relief after caesarean birth and birth experience in central Swedish county hospital. Assessment of pain was done using visual analog scale and birth experience was measured on a seven point likert scale. 60 participants were included in the study. Results showed that high level of pain was

experienced during first 24 hours of delivery and women were pleased with the pain relief.78% of the women scored greater than or equal to 4 on the Visual Analog Scale, which can be seen as inadequately treated pain. The risk of a negative birth experience was 80% higher for women undergoing an emergency cesarean birth compared with elective cesarean birth. Postoperative pain negatively affected breastfeeding and infant care. It also showed that post operative pain negatively affected breast feeding and infant care. The researchers recommended that early mobilization after caesarean birth is important for the mother child interaction.

Studies related to effectiveness of foot reflexology in reducing pain on caesarean mother:

Jipi Varghese (2014) conducted a randomized control trial to determine the effect of foot reflexology on intensity of pain and quality of sleep in post caesarean mothers. Samples were 60 post caesarean section mothers .30 Subjects each were assigned randomly to either an experimental or a control group. Intervention group received a single 15-minute foot reflexology. After 5 days of treatment, intensity of pain was measured by visual analogue scale (VAS). The post test mean score of pain of an experimental group(47.5%) was significantly lower than of a control group (76.5%). Also, there was a significant difference between groups in terms of the pain intensity and requesting for analgesic ($p < .001$). The results proved that the foot reflexology was effective in reducing the post operative pain among post caesarean mothers.

SunilaThottingal(2013) conducted a study to assess the effect of foot reflexology on pain and discomfort of mothers after caesarean section in Bangalore. The sample size consisted of 60 mothers who have undergone caesarean section.

Purposive sampling technique was used to select the samples. Data was collected by using numerical pain rating scale, and discomfort rating scale for assessing discomfort. Experimental group received 20 minutes foot reflexology. After data analysis the results shows that paired t test score 14.26(95%) shows that there is significant difference between pre test and post test pain score at 0.05 level. Over all findings has shown that foot reflexology was effective in reducing pain and discomfort of mothers who have undergone caesarean section.

Sachitha preema fernandas(2013) conducted a study to assess the effectiveness of foot reflexology on post operative mothers in maternity hospital, Mangalore. An evaluative approach was used for the study. The sample consisted of 60 post caesarean mothers by simple random sampling technique and assign 30 samples each into experimental & control group. Pain assessed by numerical pain rating scale. Foot reflexology was provided 15 minutes each day after 8 hours of administration of analgesics for 5 days. After analysis the results shows that on the 1st day pre test in the experimental group majority 29(96.7%) of the subjects had severe pain,1(3.3%)had moderate pain which was reduced after foot reflexology to 22(73.3%)had moderate pain and(26.7%).the results proved that the foot reflexology was effective in reducing the post operative pain among post caesarean mothers.

N. Razmjoo(2011) Conducted a clinical trial study in Iran to determine effect of foot reflexology on pain and anxiety in women after elective caesarean section. Samples consisted or 61 ante natal mothers and divided into foot reflexology group and routine cares group with simple sampling technique.post operative pain and anxiety were evaluated by visual analogue scale. After analysis of data the results shows that there was no statistical significant difference in pain intensity before

intervention between two groups by using t-test (0.814) but after intervention ,the difference was significant by Man-Whitney test (p=0.004). The study concluded that foot reflexology proved useful as an effective nursing intervention in controlling post caesarean pain.

Zahra Abbaspoor(2011)conducted a randomized controlled study to determine the effect hand and foot reflexology on post caesarean section pain in Mustafa Khomeini hospital,elam,iran.80 mothers were selected randomly. The visual analogue scale was used to determine the pain intensity before immediately, and 90 minutes after conducting 5minutes of hand and foot reflexology. The pain intensity was found to be reduced level of pain(mean=68%) after intervention compared with before the intervention(mean=96%).according to these findings, The effect of hand and foot reflexology can be considered as a complementary method to reduce the pain after caesarean section effectively and to decrease amount of medications and their side effects.

Mahboubeh valiani(2010) conducted a quasi experimental study to review the effect of reflexology on the pain and outcomes of the post caesarean mothers. In this quasi-experimental study, 88 mothers referred to selected hospitals of Isfahan. Samples were selected using simple random sampling method and then randomized in two groups. Data collection tools were the demographic data questionnaire, McGill Questionnaire for Pain Rating Index (PRI) assessment. Intervention group received reflexology. The data were analyzed by using descriptive and inferential statistics. The result shows that there was no significant difference between groups before intervention. In the reflexology group, there was a significant difference between the PRI before and after the intervention. 23 subjects (52.2%) in the intervention group

were experienced pain severe to mild.32 subjects (72.7%) experienced moderate to mild pain. The study concluded that the reflexology can lead to decrease in the post caesarean pain. Therefore, regarding to the safety of this technique, it can be replaced as an alternative for pharmacological methods.

Khoshtrash mehrnosh (2010) an experimental study was conducted to investigate the effect of foot reflexology on pain in caesarean section mothers. This clinical trial study was carried out on 60 women who were referred to for caesarean section in Alzahra Hospital(Rasht city). They were randomly divided into two groups of case and control. In case group, severity of pain after first stage of foot reflexology was significantly lower than before reflexology session and also in control group respectively ($p<0.001$, $p<0,0001$). The severity of pain after second stage was significantly reduced in case group as compared with control group. Foot reflexology appears to be a useful method of reducing pain.

Li cy et al (2009) Conducted a randomized controlled trial study in northern Taiwan to examine the effectiveness of using foot reflexology to reduce the pain in post caesarean women.130 post partum women participated in this study. They were divided into two groups randomly. Intervention group received 30 minutes of foot reflexology session. The outcome measured by numerical pain rating scale. The results shows that the changes in mean and found to be significantly lower in the intervention group (2.24) than the control group. The study concluded that an intervention involving foot reflexology in the post natal period significantly reduction in level of pain.

Shweta Choudhary (2004) conducted a study to find the efficacy of Reflexology in patients with postoperative pain after caesarean section surgery. Sixty patients selected from The All India Institute of Medical Science. Patients were divided randomly into two groups .Group I: Reflexology group, Group II: Control group Pain score was measured by using a visual analog scale. Statistical analysis was done by applying the Fischer exact test (Chi square test).This study shows a decrease of the quantity of painkillers in Group 1 to less than 50% as compared to Group II. The effect of Foot Reflexology causes a significant reduction of requirement and quantity of painkillers and significant reduction of pain score in Group I in comparison with Group II in post-operative patients of caesarean section.

Jamileh mokthani et al (2003) conducted a quasi experimental study to assess impact of foot reflexology technique on severity of pain after caesarean section. Non probability convenient method of sampling was used. 100 Samples were placed in two groups: foot reflexology massage and a control group. Pain was measured using a standard numerical pain scale. Comparison of the mean of pain severity was separately significant between two groups and measured group ($P<0.05$). Difference between the mean of pain severity also was significant foot reflexology massage ($P=0.0001$). They concluded that foot reflexology massages were effective on decreasing pain severity after women abdominal surgical operation and the impact of foot reflexology massage was superior.

CONCEPTUAL FRAMEWORK

Polit and Hungler state that the conceptual framework is interrelated concepts on abstractions that are assembled together in some rational scheme by virtue of this relevance to a common scheme. It is a device that helps to stimulate research and the extension of knowledge by providing both direction and impetus.

The present study was aimed at determining the effectiveness of foot reflexology on reduction of pain among post operative caesarean mothers. The conceptual framework of this study was derived from Gate control theory.

Gate control theory of pain:

The gate control theory first postulated by Ronald Melzack and Patrick David Wall in 1965. This theory suggests that for pain to pass through the gate there must be unopposed passage for nociceptive information arriving at the synapses in the substantia gelatinosa. The pain impulses will be carried out by the small diameters, slow conducting A,α and C fibres. Impulses travelled through small diameter fibres will open the pain gate and the person feels pain. Pain gate is also receiving impulses produced by stimulation of thermo receptors or mechano receptors transmitted via large diameter myelinated A, βfibres inhibit and super impose the small diameter impulse. Many non- pharmacological procedures such as application of pressure, TENS stimulate the nerve endings connected with large diameter fibres which can produce a reduction of pain by closing the pain gate.

If nociceptive information is allowed through the gate then this traffic will continue up the lateral spino-thalamic tract of the spinal cord to the thalamus, and from here to the cerebral cortex. As this stimulus passes through the brain stem it may

cause an interaction between the grey matter and the mid brain, hence transmitting the pain. Suppression system and their descending neurons can release an endogeneous opiate substance in to substantia gelatinosa at spinal cord level. The chemical nature of this endogeneous opiate, which may be endorphin or encephalin is such as to cause inhibition of transmission in the nociceptive circuit synapses. This is achieved by blocking the release of the chemical transmitter (substance P) in the pain circuit.

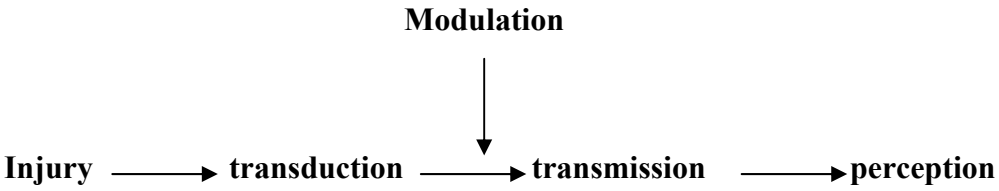
Based on the principles of gate control theory, the following conceptual framework was developed. Methods used to reduce the pain are influenced by selected variables such as age, education, occupation, religion, number of delivery, number of previous LSCS.

Post operative pain;

Post operative pain is caused by the interaction of number of physiologic and psycho logic factors. The skin and underlying tissue have been traumatized by the incision and retraction during the surgery.

Pathophysiology:

Physiologic processes, including the activity of neurotransmitters, are operative at multiple sites along this structural pathway to aid in conveying the signal. This process is referred to as nociception. Nociceptive process begins at peripheral level. When damage occurs, biochemical agents that initiate or sensitize the nociceptive response are released. These agents include potassium, substance P, bradykinin, and prostaglandin, among others. The initial injury provokes a series of physiologic events;



The Nociceptive Process

The sensory experience of pain depends on the interaction between the nervous system and the environment

Gating mechanism:

During the post operative period pain impulses are transmitted through spinal nerve segment of $T_{11\text{-}12}$ and accessory lower thoracic and upper lumbar sympathetic nerve which are travelled through (A, α and C) small diameter and slow conducting myelinated fibres and reach the pain gate and open the gate, thus mother perceives pain. Impulses from foot reflexology travel through fast conducting myelinated A, βfibres which superimpose small fibres and closes the pain gate and 13 endorphin which is released from the inter neuron at spinal cord level which also closes the gate of pain. Thus mother perceives reduction in level of pain.

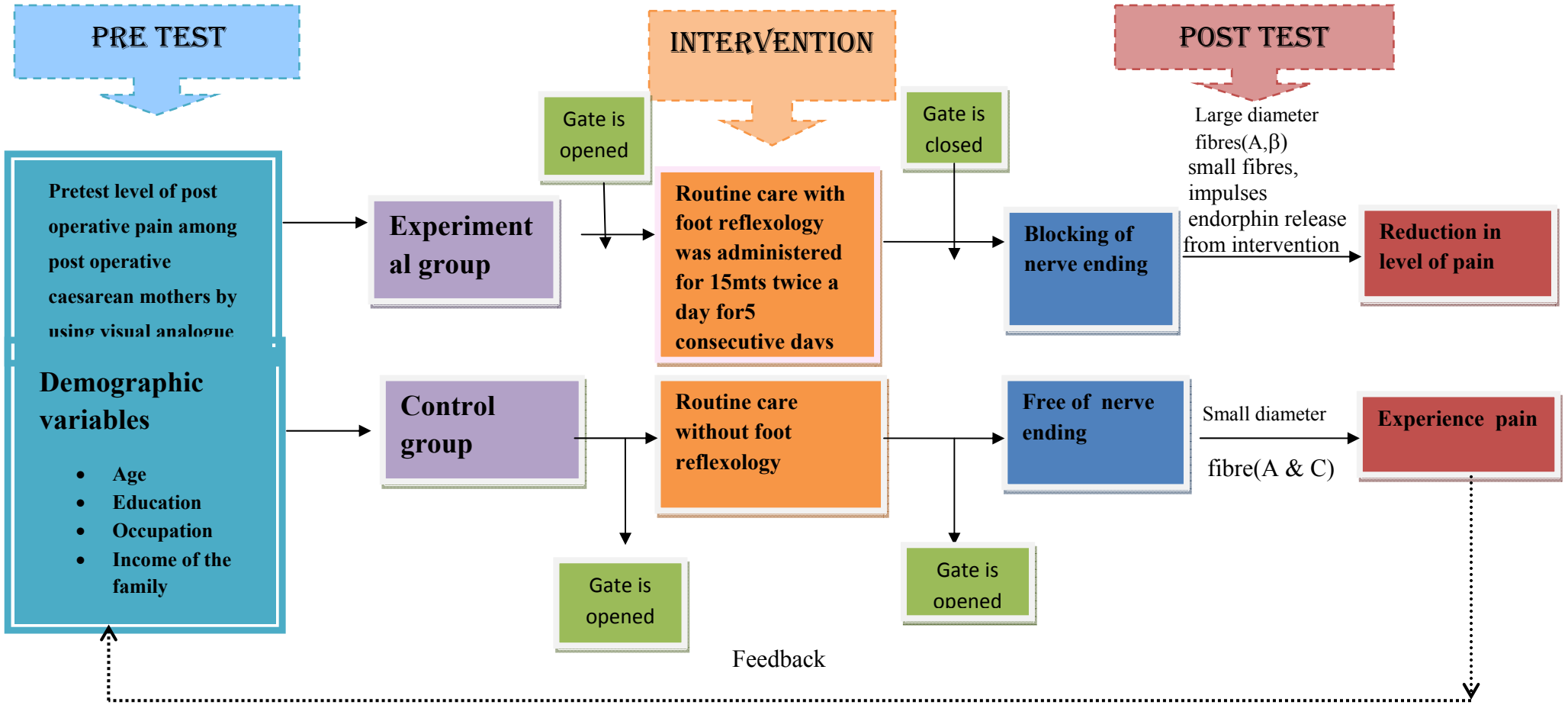


Figure.1:Conceptual Framework based on Wall &Malzack's Gate Control Theory(1965)

CHAPTER – III

METHODOLOGY

CHAPTER – III

METHODOLOGY

The methodology of research indicates the general pattern of organizing, the procedure for gathering valid and reliable data for the problem under investigation. **(Polit and Beck, 2010).**

Methodology is a significant part of any study, which enables the researcher to logically project the research undertaken. Research methodology is the systematic way to carry out an academic study and research in flawless manner.

The chapter includes research design, population, sample size, sampling technique, development of the tool, content validity, pilot study, ethical consideration, data collection procedure, and plan for data analysis.

RESEARCH APPROACH:

The investigator adopted a quantitative evaluative approach was used for this study because the aim of the investigator was to determine the effectiveness of foot reflexology on reduction of pain among post operative caesarean mothers.

RESEARCH DESIGN:

Quasi experimental design involves the manipulation of an independent variable that is an intervention. Quasi experimental design lacks randomization, the signature of a true experiment (Polit and Beck, 2010)

Selection of the design is based on the purpose of the study. The present study was conducted to assess the effectiveness of foot reflexology on reduction of pain among post operative caesarean mothers using a quasi- experimental non equivalent

control group pretest- posttest design. In this design samples were selected by Non probability purposive sampling technique to the experimental and control group.

The control groups were of those post operative caesarean mothers who have not received any intervention, but in experimental group, they are receiving foot reflexology. The researcher ensured purposive selection of samples for the experimental and control group in the present study.

Study subjects	**Pre test**	**Intervention**	**Post test**
Experimental group	O_1	X	O_2
Control group	O_1	-	O_2

KEYS:

O_1. O_2=effect of foot reflexology

O_1= Assessment of pain among post operative caesarean mothers (pre test)

X =Intervention – Foot reflexology

O_2= Assessment of pain among post operative caesarean mothers (post test)

VARIABLES:

Variable is a concept that is measurable and varies. Two types of variables were identified in this study. They are independent variable & and dependent variable.

Independent variable: Foot reflexology on pain perception

Dependent variable : level of pain

Extraneous variable : Age, education, occupation, religion, income of the family, previous history of caesarean deliveries.

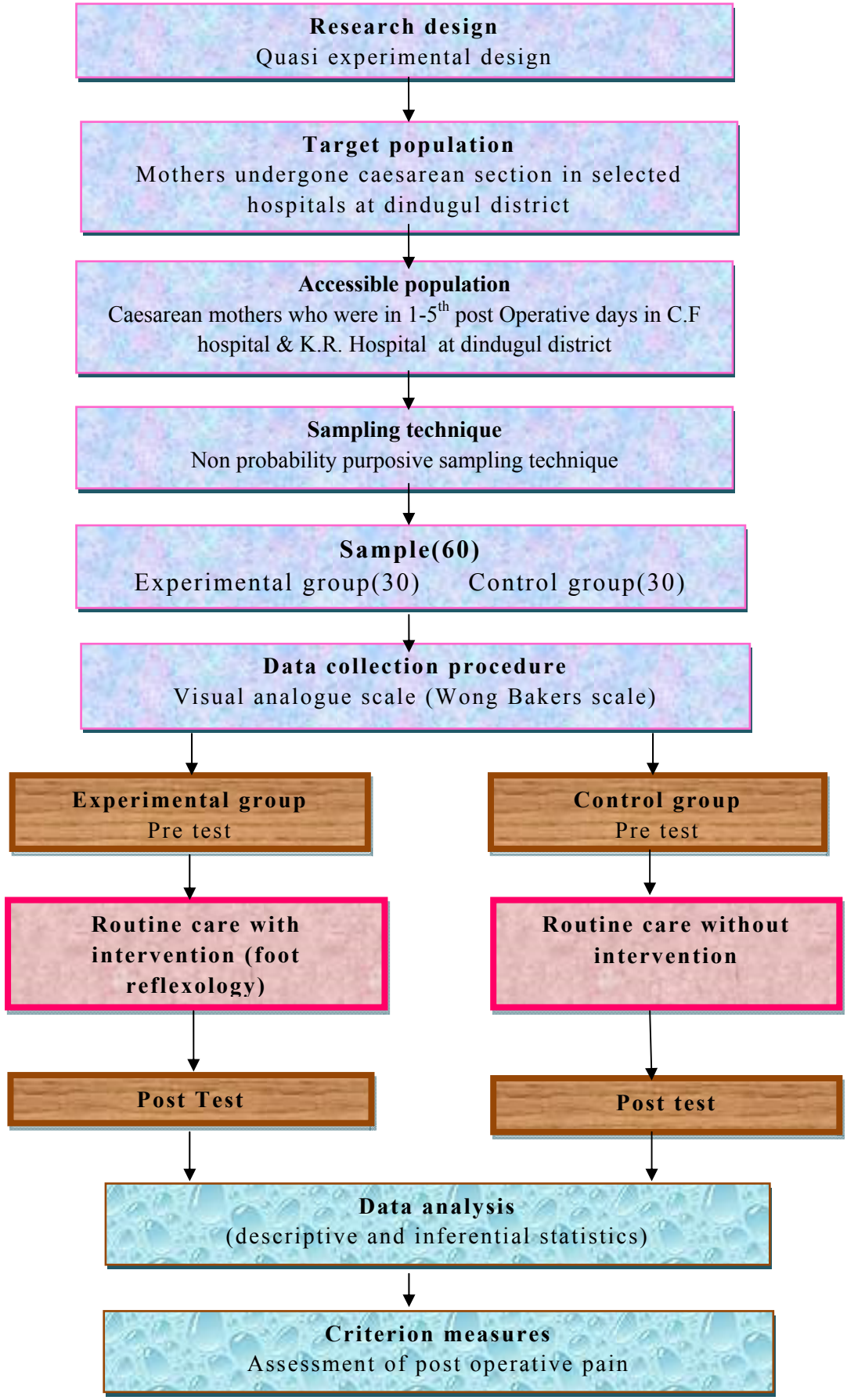


Figure:2 Schematic representation of the research methodology

SETTINGS OF THE STUDY:

Setting is the general location and condition in which data collection takes place for the study (Polit, D.F and Beck, 2010).

The research was conducted at a selected hospitals inoddanchatram at Dindigul district (Christian fellowship hospital &K.R. hospital).The samples for the experimental group were selected from Christian fellowship hospital, oddanchatramand the samples for the control group were selected fromK.R.hospital which is 10kms and 11kms away respectively from the College of Nursing. These hospitals were selected based on availability of samples and feasibility in terms of co-operation extended by the medical officer.

POPULATION:

A population is the entire aggregation of cases that meet a designated set of criteria.(Polit, D.F, and Beck, 2010)

Target population: All post operative caesarean mothers will undergone caesarean section in selected hospitals at dindigul district.

Accessible population: All post operative caesarean mothers who were in 1-5th post operative day in Christian fellowship hospital &K.R. hospital at dindigul district.

SAMPLE/SAMPLE SIZE:

The sample size consists of 60 post operative caesarean mothers who were in 1-5th post operative day in selected hospitals at Dindigul district.

30 samples assigned for the experimental group and 30 for the control group.

CRITERIA FOR SAMPLE SELECTION:

Inclusion criteria

- Conscious and oriented post operative caesarean mothers. ‘
- 1 - 5th post operative day mother.
- Mothers who are able to speak and understand Tamil.
- Post operative mothers who are willing to participate in this study.

Exclusion criteria

- Post operative caesarean mothers with complication.
- Post operative caesarean mothers with feet abnormalities.
- Using any other complementary therapies like acupuncture, TENS.
- Mothers who are not available during the procedure.

SAMPLING TECHNIQUE:

The sampling technique adopted for this study was non probability purposive sampling technique.

DEVELOPMENT OF THE TOOL:

Based on the objectives of the study, a demographic Performa was developed by the study, a demographic Performa was developed and the visual analogue scale is to collect the required data from samples.

Description of the tool: The tool consists of following sections.

Section A : The socio demographic data of the post operative caesarean mothers; such as age, education, religion, occupation, income of the family, number of previous deliveries (LSCS).

Section B : Visual Analogue Scale (wong bakers scale)which consist of 0- 10 score.

WONG BAKERS PAIN ASSESSMENT SCALE

No pain **Mild,annoying Pain** **Nagging, uncomfortable Troublesome Pain** **distressing, miserable, pain** **Intense, dreadful, horrible pain** **worst possible, unbearable pain**

The description of facial expressions are;

Facial expressions	Description
Face 0	very happy because she doesn't hurt at all.
Face 1	hurts just a little bit.
Face 2	hurts a little more.
Face 3	hurts even more.
Face 4	hurts a whole lot more.
Face 5	hurts as much as you can imagine, although you do not have to be crying to feel this bad.

SCORING PROCEDURE:

Scoring was given according to the level of pain.

Score	Level of post operative caesarean pain
0	No pain
1-3	Mild pain
4-6	Moderate pain
7-10	Severe pain

The level of post operative pain was assessed before and after intervention.

VALIDITY AND RELIABILITY OF TOOL:

VALIDITY;

The degree to which an instrument measures what it is intended to measure.(Polit, D.F., and Beck, 2010).

Validity of the tool was obtained from five Experts in the field of Nursing, one from the field of Medicine one from the reflexologist.

RELIABILITY:

Reliability of an instrument is the degree of consistency measures that attribute it is supposed to be measured. **(Polit and Hungler, 1998)**

The Reliability of the tool was established by implementing the tool on post caesarean mothers among experimental and control group. The Visual analogue scale was twice applied in a random sample of post operative caesarean mothers.

Visual analogue scale was statistically significant. By interrater method the reliability was found $r^1 = 0.99$, which indicates reliability of the tool. Hence the tool was considered for proceeding.

PILOT STUDY:

A small –scale version, or trial run, done in preparation for a major study. **(Politand Beck, 2010)**

Pilot study was conducted to evaluate the feasibility and reliability of the study. The pilot study was conducted among post operative caesarean mothers in selected hospitals at dindigul district.6 sample were taken for pilot study.pre test was conducted then foot reflexology was given as a intervention.post test was conducted after 15 minutes of intervention. The method of organizing data analysis method,statistical tests to be employed and presentations of data were formulated. The feasibility with regard to the availability of sample, cooperation of respondents and accessibility of setting was established. The result of pilot study showed that the study was feasible. Pilot study helped the investigator to confirm the feasibility of carry out the main study.

DATA COLLECTION PROCEDURE:

The written permission was obtained from the concerned authority prior to data collection. The study participants were selected by purposive sampling technique. Oral permission was obtained from the study participants after explaining the objectives of the study. All the mothers who are in 1-5th post operative day. In that 60 samples, who satisfies the inclusion criteria will be recruited and assigned 30 in the experimental group and 30 in control group.Pre test data was assessed by researcher using visual analogue Scale for both the groups twice a day. Experimental group

receives intervention of foot reflexology twice a day before administration of analgesics. No Intervention will be given to control group. Posttest was conducted by researcher for same groups using the same scale after administering the foot reflexology.

Weeks	Activity	Samples	
		Control group	Experimental group
1st week	Pre test-post test	16 samples	-
2nd week	Pre test-post test	14 samples	-
3rd week	Pre test-intervention-post test	-	9 samples
4th week	Pre test-intervention-post test	-	11 samples
5th week	Pre test-intervention-post test	-	10 samples
6th week	Data analysis& interpretation	30 samples	30 samples

PLAN FOR DATA ANALYSIS:

The statistical method will be used for analysis are descriptive and inferential statistics. The data related to background variables were analyzed by using descriptive measures (frequency, percentage). Inferential statistics of t-test will be used to assess the effectiveness of foot reflexology on reduction of postoperative pain and also will be used to associate the level of pain among post operative caesarean mothers and their selected background variables.

PROTECTION OF HUMAN RIGHTS:

Prior to collection of data, written permission was obtained from the medical superintendent in Christian fellowship hospital oddanchatram for experimental group, and K.R hospital oddanchatram for control group in Dindigul district. Oral consent was obtained from the post operative caesarean mothers those who are willing to participate in this study.

CHAPTER – IV

DATA ANALYSIS AND INTERPRETATION

CHAPTER - IV

DATA ANALYSIS AND INTERPRETATION

'All meanings, we know, depend on the key of interpretation.'

-George Eliot

The process of evaluating datausing analytical and logical reasoning to examine each component of the data provided. This form of analysis is just one of the many steps that must be completed when conducting a researchexperiment. Data from various sources is gathered, reviewed, and then analyzed to form some sort of finding or conclusion. There are a variety of specific data analysis method, some of which include data mining, text analytics, business intelligence and data visualizations.

Analysis is a process of organizing and synthesizing data so as to answer research questions and test hypothesis. (Politand Beck, 2010)

This chapter describes analysis and interpretation of data collectedto assess the effectiveness of foot reflexology among post operative caesarean mothers selected hospitals at Dindigul district. The collected data was organized, analyzed and tabulated by using descriptive and inferential statistics.These datas were represented as follows.

SECTION.I: Data on demographic variables of post operative caesarean mothers experimental and control group.

SECTION.II: Data on level of pain for post operative caesarean mothers in experimental and control group.

SECTION.III: Data on effectiveness of foot reflexology on reduction of pain among post operative caesarean mothers.

SECTION.IV: Data on association between the level of pain among post operative caesarean mothers in control group and their selected demographic variables.

SECTION.V: Data on association between the level of pain among post operative caesarean mothers in experimental group and their selected demographic variables.

SECTION.I:Data on demographic variables of post operative caesarean mothers in experimental and control group.

Table: 1. Frequency and percentage distribution of post operative caesarean mothers according to their Demographic data

N = 30+30

Demographic data	Control Group		Experimental Group	
	N	%	N	%
1.Age of the mother:				
a) 16-20 years	4	13.3	7	23.3
b) 21-25 years	20	66.7	17	56.7
c) 26-30 years	6	20	6	20
d) Above 30 years	0	0	0	0
2.Religion :				
a) Hindu	27	90	27	90
b) Muslim	1	3.3	3	10
c) Christian	2	6.7	0	0
d) Any others	0	0	0	0
3.Educational Status:				
a) Illiterate	0	0	1	3.3
b) Primary education	10	33.3	10	33.3
c) Higher secondary	14	46.7	12	40
d) Graduates	6	20	7	23.3
4.Occupation:				
a) House wife	22	73.3	24	80
b) Private employee	6	20	3	10
c) Government employee	1	3.3	0	0
d) Self employee	1	3.3	3	10
5.Income of the family:				
a) Below 3000	1	3.3	1	3.3
b) 3001-6000	7	23.3	11	36.7
c) 6001-9000	20	66.7	13	43.3
d) More than 9000	2	6.7	5	16.7
6.Number of previous deliveries:				
a) None	17	56.7	24	80
b) One	13	43.3	6	20
c) Two	0	0	0	0
d) Three	0	0	0	0
7.Number of previous caesarian section:				
a) No	21	70	25	83.3
b) One	9	30	5	16.7
c) Two	0	0	0	0
d) Three	0	0	0	0

EXPERIMENTAL GROUP:

The above table shows that among 30 samples, with regards to **Age** 7(23.3%) samples belonged to 16-20 years, 17(56.7%) belonged to 21-25 years and 6(20%) of them belonged to 26-30yrs.

Regarding **Religion**, 27(90%) of them belonged to hindu, 3(10%) of them belonged to muslim.

Regarding **Education**, 1(3.3) was illiterate, 10(33.3%) of them had primary school education, 12(40%) of them had higher secondary education, 7(23.3%) were graduate.

With regards to **occupation** housewives were 24(80%), 3(10%) were private employee and 3(10%) were self employee.

About **Family's monthly income** is <3000 for 1(3.3.%) samples,11(36.7%) samples income between 3001-6000,13(43.3%) samples income between 6001-9000,5(16.7%) sample got >9001.

Regarding **Number of previous delivery** 24(80%) samples had no experience of delivery in the past, 6(20%) of the samples had one delivery in the past.

Regarding **Number of previous caesarean section** 25(83.3) samples had no experience of caesarean section in the past, 5(16.7) samples had one caesarean section in the past.

CONTROL GROUP:

The above table shows that among 30 samples, with regards to **Age** 4(13.3%) samples belonged to 16-20 years, 20(66.7%) belonged to 21-25 years and 6(20%) of them belonged to 26-30yrs.

Regarding **Religion**, 27(90%) of them belonged to Hindu,1(3.3%) of them belonged to Muslim, 2(6.7) of them belonged to Christian.

Regarding **Education**, 10(33.3%) of them had primary school education, 14(46.7%) of them had higher secondary education, 6(20%) were graduate.

With regards to **occupation** housewives were 22(73.3%), 6(20%) were private employee,1(3.3) are government employee and 1(3.3%) were self employee.

About **Family's monthly income** is <3000 for 1(3.3.%) samples,7(23.3%) samples income between 3001-6000,20(66.7%) samples income between 6001-9000, 2 (6.7%) samples got >9001.

Regarding **Number of previous delivery** 17(56.7%) samples had no experience of delivery in the past, 13(43.3%) of the samples had one delivery in the past.

Regarding **Number of previous caesarean section** 21(70%) samples had no experience of caesarean section in the past, 9(30%) samples had one caesarean section in the past.

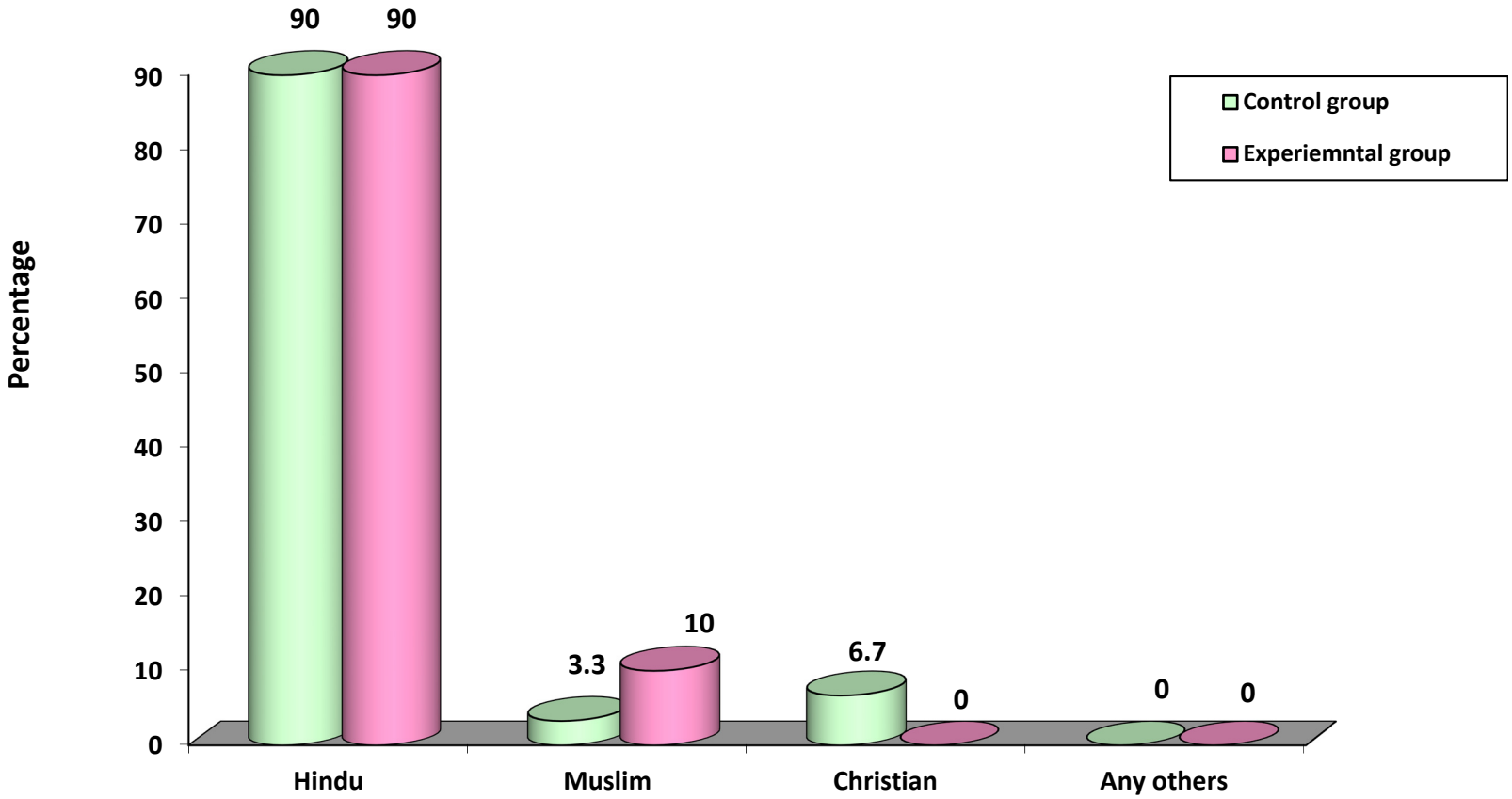


Figure.3: Distribution of post operative caesarean mothers accoding to their religion.

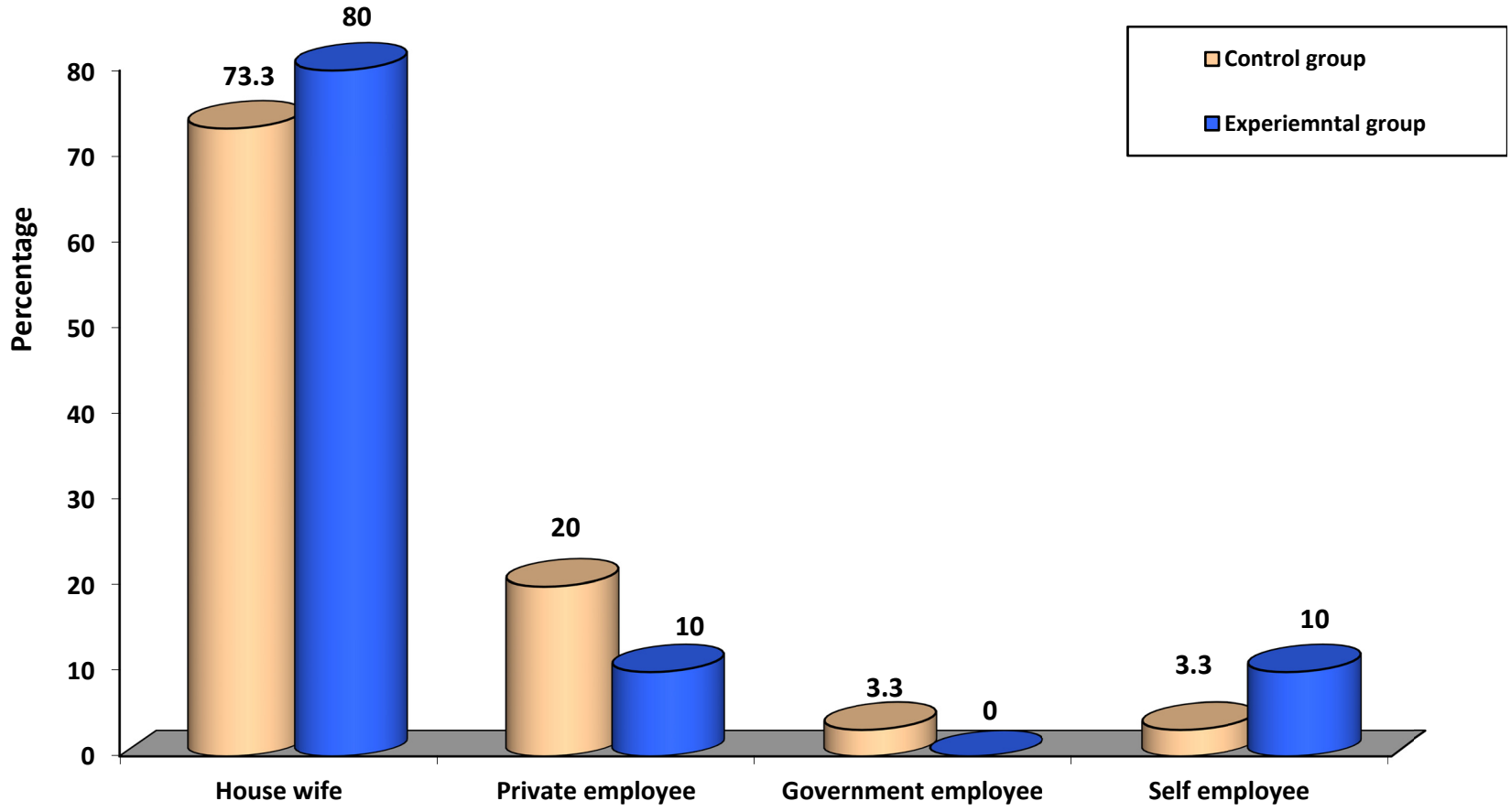


Figure. 4 Distribution of post operative caesarean mothers according to their occupation.

SECTION.II: Data on level of pain among post operative caesarean mothers in control group.

Table:2 frequency and percentage for pre test level of pain among post operative caesarean mothers in control group . **N=30**

Level of Pain	Pre test				Post test			
	Morning		Evening		Morning		Evening	
	f	%	f	%	f	%	f	%
Day-1								
No pain	-	-	-	-	-	-	-	-
Mild pain	-	-	-	-	-	-	-	-
Moderate pain	-	-	2	6.7	-	-	2	6.7
Severe pain	30	100	28	93.3	30	100	28	93.3
Day-2								
No pain	-	-	-	-	-	-	-	-
Mild pain	-	-	-	-	-	-	-	-
Moderate pain	-	-	3	10	1	33	4	13
Severe pain	30	100	27	90	29	67	26	87
Day-3								
No pain	-	-	-	-	-	-	-	-
Mild pain	-	-	-	-	-	-	-	-
Moderate pain	10	33	7	23	10	33	8	27
Severe pain	20	67	23	77	20	67	22	73
Day-4								
No pain	-	-	-	-	-	-	-	-
Mild pain	1	3.3	-	-	1	-	-	-
Moderate pain	24	80	20	67	25	83.4	21	70
Severe pain	5	16.7	10	33	4	13.3	9	30
Day-5								
No pain	-	-	-	-	-	-	-	-
Mild pain	4	13	1	3	6	20	1	3
Moderate pain	26	87	27	90	27	80	27	90
Severe pain	-	-	2	7	-	-	2	-

The above table shows that in morning control group the pre-test scores on the day 1 level of pain were 30(100%) had severe pain respectively. Whereas in post-test scores also 30(100%) had severe pain. Pre test score on the day 2 level of pain

were 30(100%) had severe pain. Whereas in post test scores on the level of pain were 29(96.7%) had severe pain 1(3.3%) had moderate pain. Pretest scores on the day 3 level of pain were 10(33%) had moderate pain, 20(67%)had severe pain. whereas in post test scores on the level of pain10(33%)had severe pain,20(67%)had moderate pain. Pre test score on the day 4 level of pain were 5(16.7%) had severe pain, 24(80%)had moderate pain,1(3.3%)had mild pain. Whereas in post test scores on the level of pain were 1(3%) had mild pain, 25(83.4%) had moderate pain and 4(13.3%)had severe pain. Pre test score on the day 5 level of pain were 26(87%) had moderate pain, 4(13%) were mild pain. Whereas in post test scores on the level of pain were 6(20%) had mild pain, 27(80%) had moderate pain.

In evening control group the pre-test scores on the day 1 level of pain were 28(93.3%) had severe pain, 2(6.7%) had moderate pain respectively. Whereas in post-test scores on the level of pain 26(87%) had severe pain, 4(13%) had moderate pain respectively. Pre test score on the day 2 level of pain were 27(90%) had severe pain, 3(10%) had moderate pain. Whereas in post test scores on the level of pain were 26(86.6%) had severe pain, 4(13.3%) had moderate pain. Pretest scores on the day 3 level of pain were 7(23%) had moderate pain, 23(77%) had severe pain. whereas in post test scores on the level of pain 22 (73%) had severe pain, 8(27%) had moderate pain. Pre test score on the day 4 level of pain were 10(33%) had severe pain, 20(67%) had moderate pain. Whereas in post test scores on the level of pain were 1(3%) had severe pain, 29(97%) had moderate pain. Pre test score on the day 5 level of pain were 2(7%) had severe pain, 27(90%) had moderate pain and 1(3%) had mild pain. Whereas in post test scores on the level of pain were1 (3%) had mild pain, 27(90%) had moderate pain and 2(7%) had severe pain.

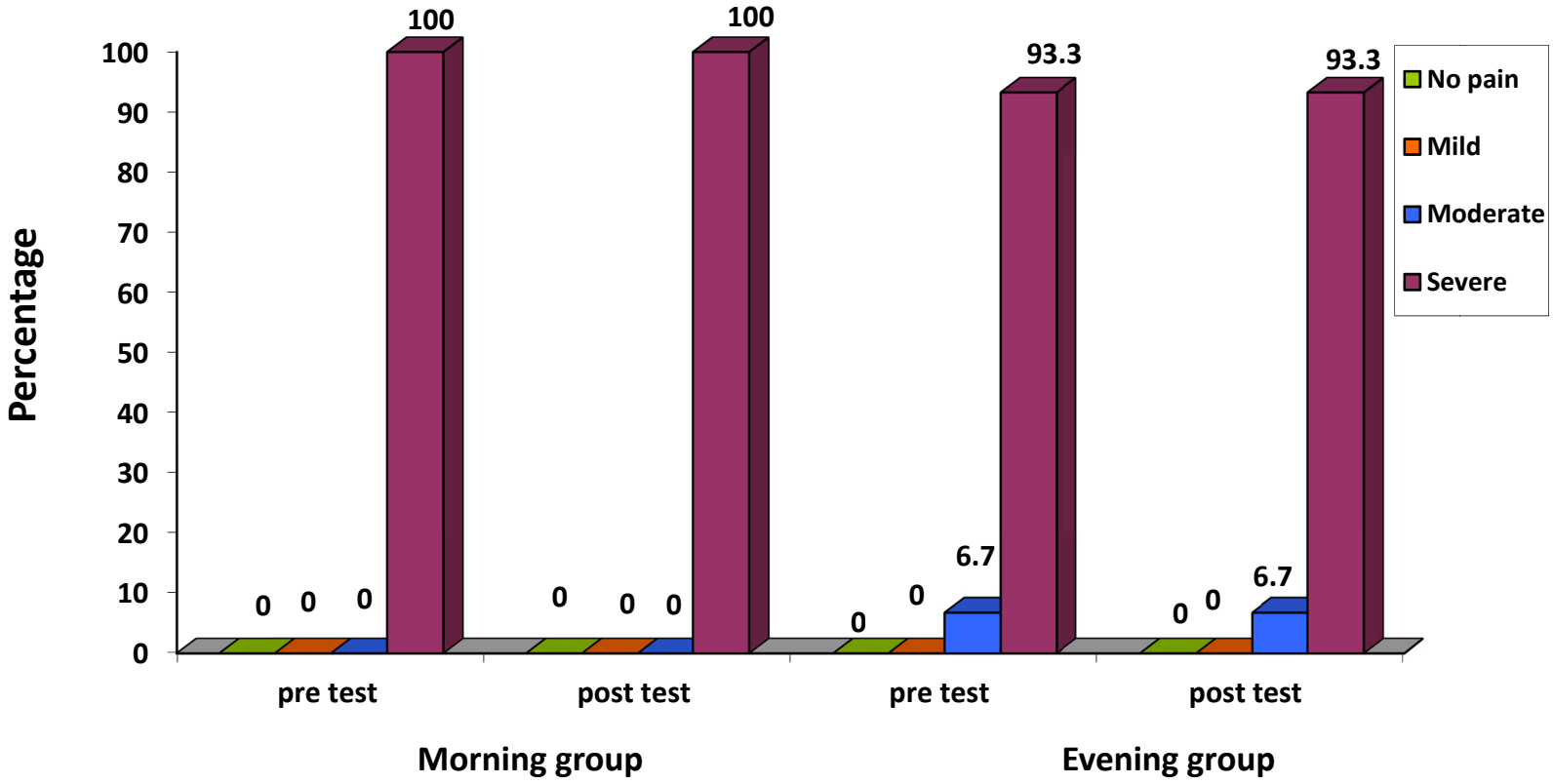


Figure 5. Distribution of Level of pain in day-1 among post operative caesarean mothers in control group

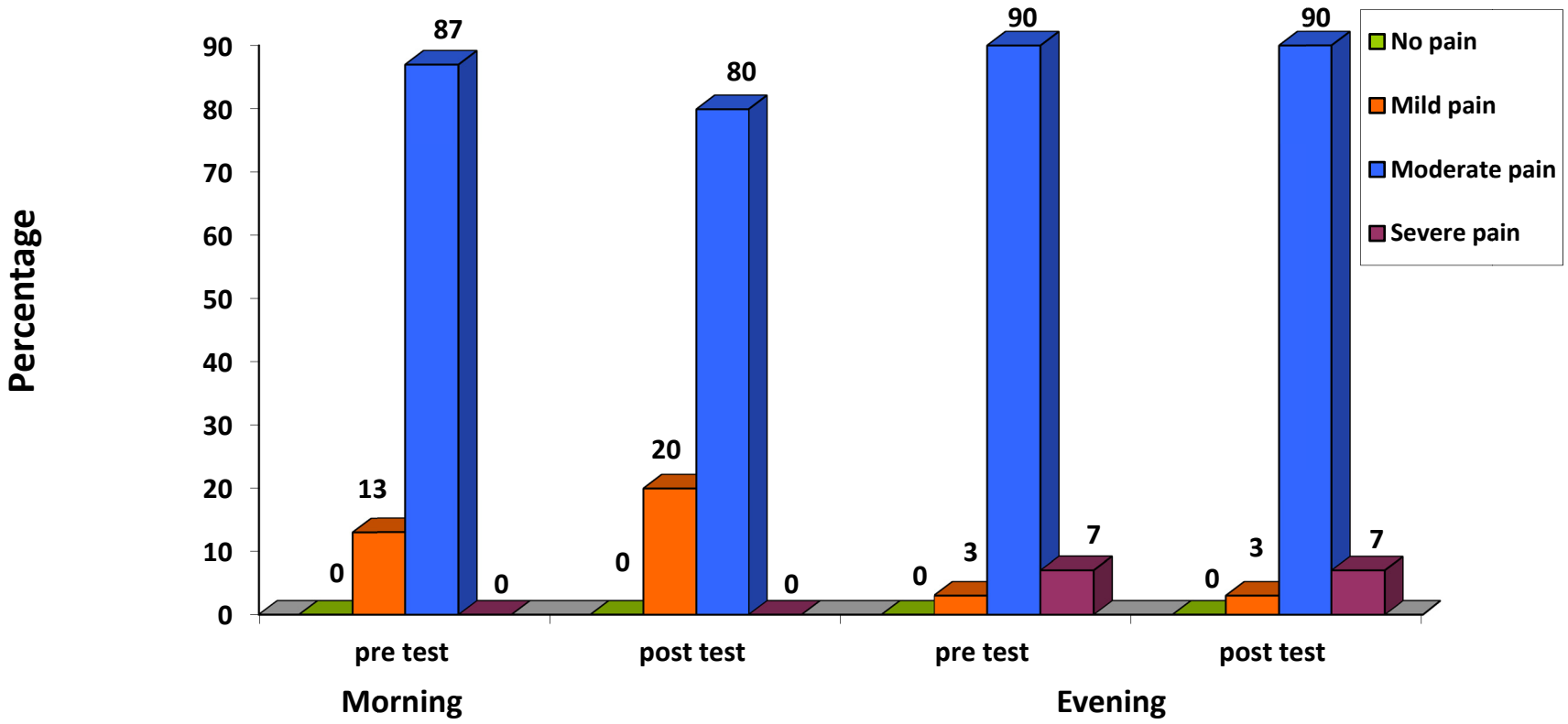


Figure 6. Distribution of level of pain in day-5 among post operative caesarean mothers in control group

Table:3 Frequency and percentage distribution for pre test level of pain among post operative caesarean mothers in Experimental group.

N=30

Level of Pain	Pre test				Post test			
	Morning		Evening		Morning		Evening	
	f	%	f	%	f	%	f	%
Day-1								
No pain	-	-	-	-	-	-	-	-
Mild pain	-	-	-	-	10	33	20	67
Moderate pain	-	-	1	3	20	67	10	33
Severe pain	30	100	29	97	-	-	-	-
Day-2								
No pain	-	-	-	-	-	-	-	-
Mild pain	-	-	-	-	8	27	22	73
Moderate pain	-	-	1	3	21	70	8	27
Severe pain	30	100	29	97	1	3	-	-
Day-3								
No pain	-	-	-	-	-	-	-	-
Mild pain	-	-	-	-	1	3	23	77
Moderate pain	20	67	13	43	29	97	7	23
Severe pain	10	33	23	57	-	-	-	-
Day-4								
No pain	-	-	-	-	-	-	-	-
Mild pain	1	3	4	13	19	63	20	67
Moderate pain	28	93	26	87	11	37	10	33
Severe pain	1	3	-	-	-	-	-	-
Day-5								
No pain	-	-	-	-	1	3	3	10
Mild pain	15	50	27	90	27	90	27	90
Moderate pain	15	50	13	10	2	7	-	-
Severe pain	-	-	-	-	-	-	-	-

The above table shows that in morning experimental group the pre-test scores on the day 1 level of pain were 30(100%) had severe pain respectively. Whereas in post-test scores on the level of pain 10(33%) had mild pain, 20(67%) had moderate respectively. Pre test score on the day 2 level of pain were 30(100%) had severe pain. Whereas in post test scores on the level of pain were 8(27%) had mild pain, 21(70%) had moderate pain and 1(3%) had severe pain. Pretest scores on the day 3 level of pain were 20(67%) had moderate pain, 10 (33%) had severe pain, whereas in post test scores on the level of pain 1(3%) had mild pain, 29(97%) had moderate pain. . Pre test score on the day 4 level of pain were 1(3%) had severe pain, 28(93%) had moderate pain, 1(3%) had mild pain. Whereas in post test scores on the level of pain were 19(63%) had mild pain, 11(37%) had moderate pain. Pre test score on the day 5 level of pain were 15(50%) had moderate pain, 15(50%) were mild pain. Whereas in post test scores on the level of pain were 1(3%) had no pain, 27(90%) had mild pain, 2(7%) had moderate pain.

In evening experimental group the pre-test scores on the day 1 level of pain were 29(97%) had severe pain, 1(3%)had moderate pain respectively. Whereas in post-test scores on the level of pain10 (33%) had moderate pain, 20(67%) had mild pain respectively. Pre test score on the day 2 level of pain were 29(97%) had severe pain, 1(3%) had moderate pain. Whereas in post test scores on the level of pain were 8(27%) had moderate pain, 22(73%) had mild pain. Pretest scores on the day 3 level of pain were 13(43%) had moderate pain, 17(57%)had severe pain. whereas in post test scores on the level of pain 23(77%)had mild pain,7(23%) had moderate pain. . Pre test score on the day 4 level of pain were 26(87%) had moderate pain,4(13%)had mild pain. Whereas in post test scores on the level of pain were 20(67%) had mild pain,

10(33%) had moderate pain. Pre test score on the day 5 level of pain were 13(10%) had moderate pain, 27(90%) were mild pain. Whereas in post test scores on the level of pain were 3(10%) had no pain, 27(90%) had mild pain.

This finding reveals that, in experimental group after the foot reflexology, the level of pain among post operative caesarean mothers were decreased in post test than pre test.

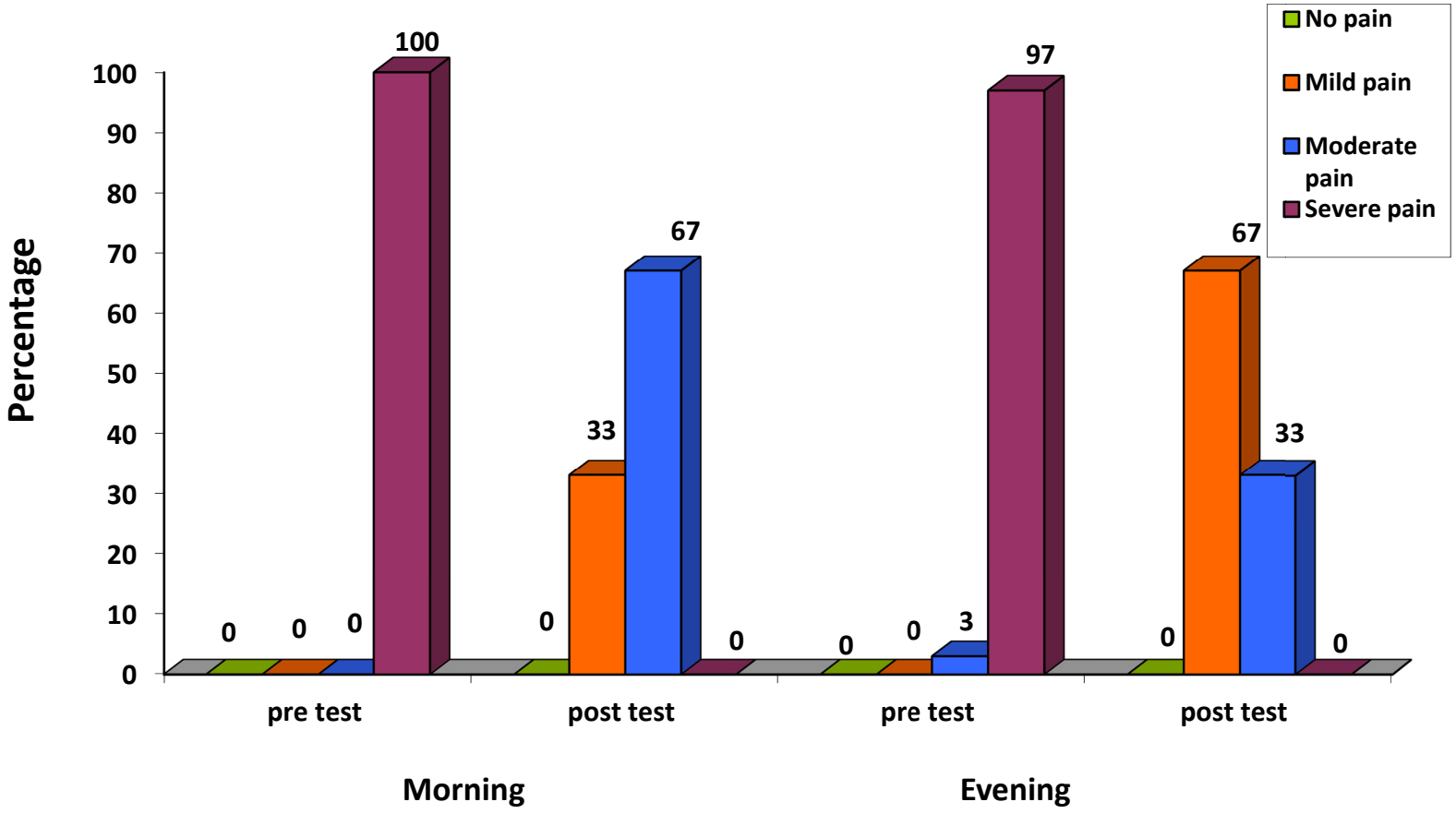


Figure 7. Distribution of level of pain in day-1 among post operative caesarean mothers in Experimental group

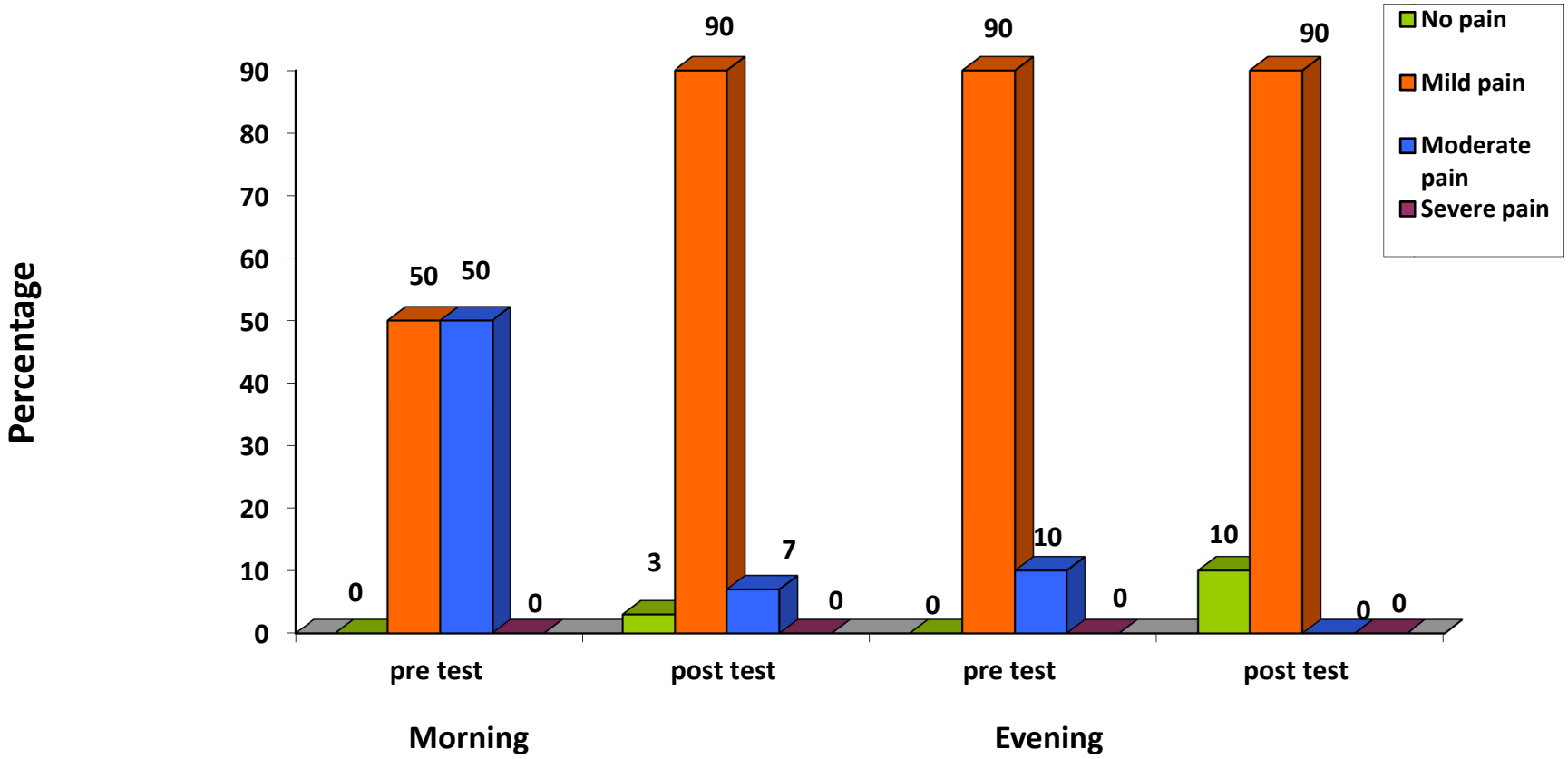


Figure.8. Distribution of level of pain in day-5 among post operative caesarean mothers in Experimental group

SECTION.III: Data on effectiveness of foot reflexology on reduction of pain among post operative caesarean mothers.

Table.4: Paired 't'-test of the pre and post test level of pain among post operative caesarean mothers in morning experimental and control group.

N=(30+30)

Level of Pain	Morning pre test		Morning post test		Mean difference	't'-value
	Mean	SD	Mean	SD		
Experimental Group;1st day	8.63	0.61	4.2	1.38	4.43	21.39***
2nd day	7.6	0.67	4.13	1.28	3.47	14.84***
3rd day	6	0.91	4.6	0.72	1.4	9.95***
4th day	4.6	0.81	3.23	0.68	1.37	8.80***
5th day	3.57	0.73	2.17	0.87	1.4	11.37***
Control Group;						
1st day	8.47	0.57	8.4	0.56	0.07	1.43
2nd day	7.77	0.82	7.67	0.84	0.1	1.79
3rd day	7	1.05	6.93	0.98	0.07	1
4th day	5.5	0.97	5.4	0.97	0.1	1.79
5th day	4.13	0.63	4	0.64	0.13	2.11*

(*** P<0.001 highly significant)

The above table shows that the experimental group calculated 't' test value for 1st day pain was 21.39, 2nd day pain was 14.84, 3rd day pain was9.95, 4th day pain was 8.80 and 5th day pain was 11.37. Overall 5 days 't' test values are highly significant at P<0.001 level.

In control group calculated 't' test value for 1st day pain was 1.43, 2nd day pain was 1.79, 3rd day pain was1, 4th day pain was1.79. Overall 4 days 't' test values are not significant at P<0.001 level. Only 5th day pain was 2.11, significant at p<0.05. It can be concluded that there is no much difference in pretest and posttest in level of pain in the post operative mothers in the control group.

Hence H_1 is accepted. It can be concluded that foot reflexology was effective in reducing the post operative pain among post operative cesarean mothers.

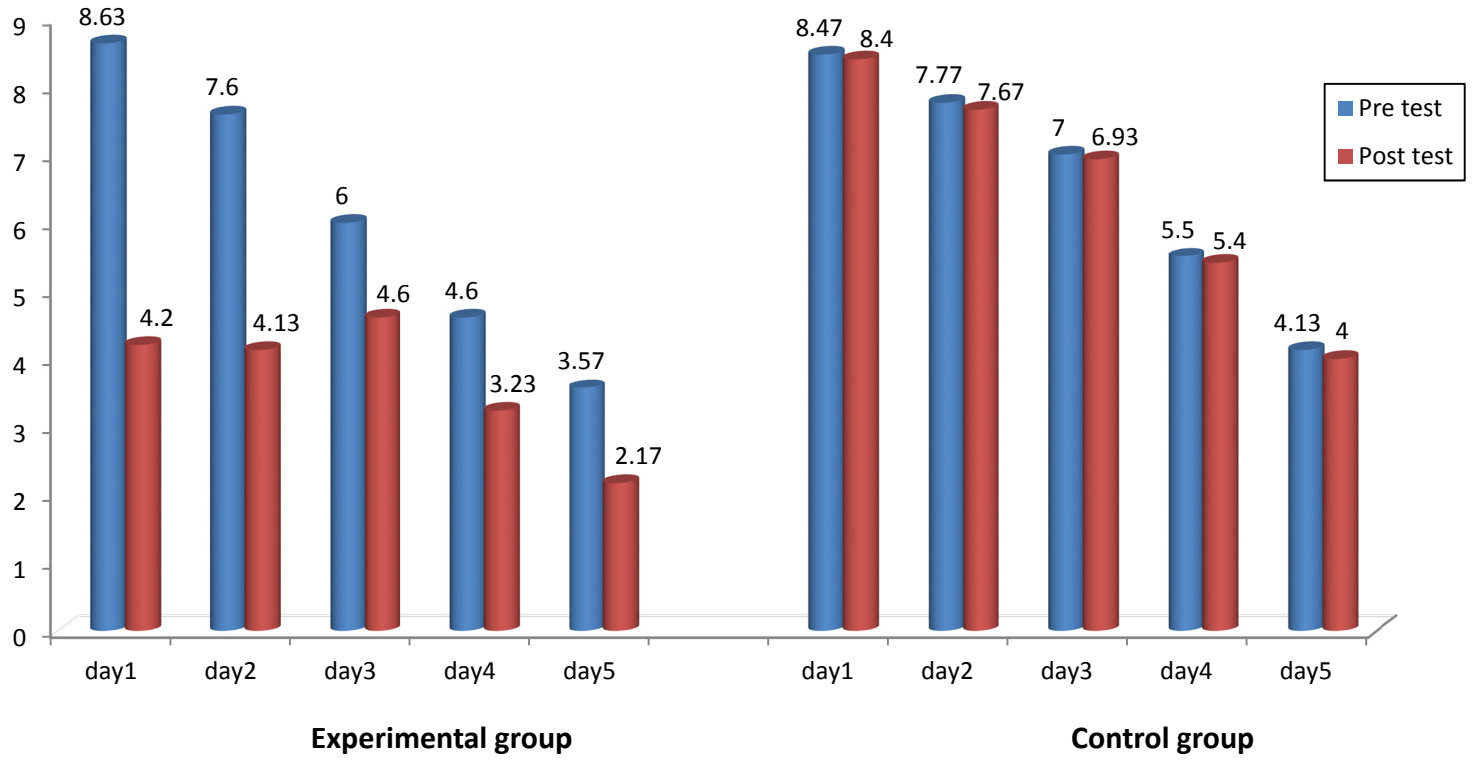


Figure.9. Distribution of mean pre and post test level of pain among post operative caesarean mothers in morning experimental and control group

Table: 5 Paired 't'-test of the pre and post test level of pain among post operative caesarean mothers in evening experimental and control group.

N=(30+30)

Level of Pain	Evening pre test		Evening post test		Mean difference	't'-value
	Mean	SD	Mean	SD		
Experimental Group;1st day	8.2	0.89	3.23	1.13	4.97	30.56***
2nd day	7.57	0.82	3.1	1.21	4.47	17.69***
3rd day	6.63	0.99	3.13	1.11	3.5	12.04***
4th day	4.47	0.78	3.2	0.66	1.27	7.35***
5th day	3.47	0.94	1.43	0.68	2.03	13.09***
Control Group;						
1st day	8.03	0.93	7.97	1.03	0.07	1.439
2nd day	8	0.98	7.93	1.04	0.07	1.43
3rd day	7.23	0.98	7.23	1.01	0.03	1
4th day	6.17	0.83	6.1	0.84	0.07	1.439
5th day	5.23	0.86	5.17	0.83	0.06	1.43

(*p<0.05-significant , *** P<0.001 highly significant)

The above table shows that the experimental group calculated' test value for 1st day pain was 30.56, 2nd day pain was 17.69, 3rd day pain was12.04, 4th day pain was 7.35 and 5th day pain was 13.09. Overall 5 days 't' test values are highly significant at P<0.001 level.

In control group calculated 't' test value for 1st day pain was 1.43, 2nd day pain was 1.79, 3rd day pain was1, 4th day pain was1.79. Overall 4 days 't' test values are not significant at P<0.001 level. Only 5th day pain was 2.11, significant at p<0.05. It can be concluded that there is no much difference in pretest and posttest in level of pain in the post operative mothers in the control group.

Hence H_1 is accepted. It can be concluded that foot reflexology was effective in reducing the post operative pain among post operative cesarean mothers.

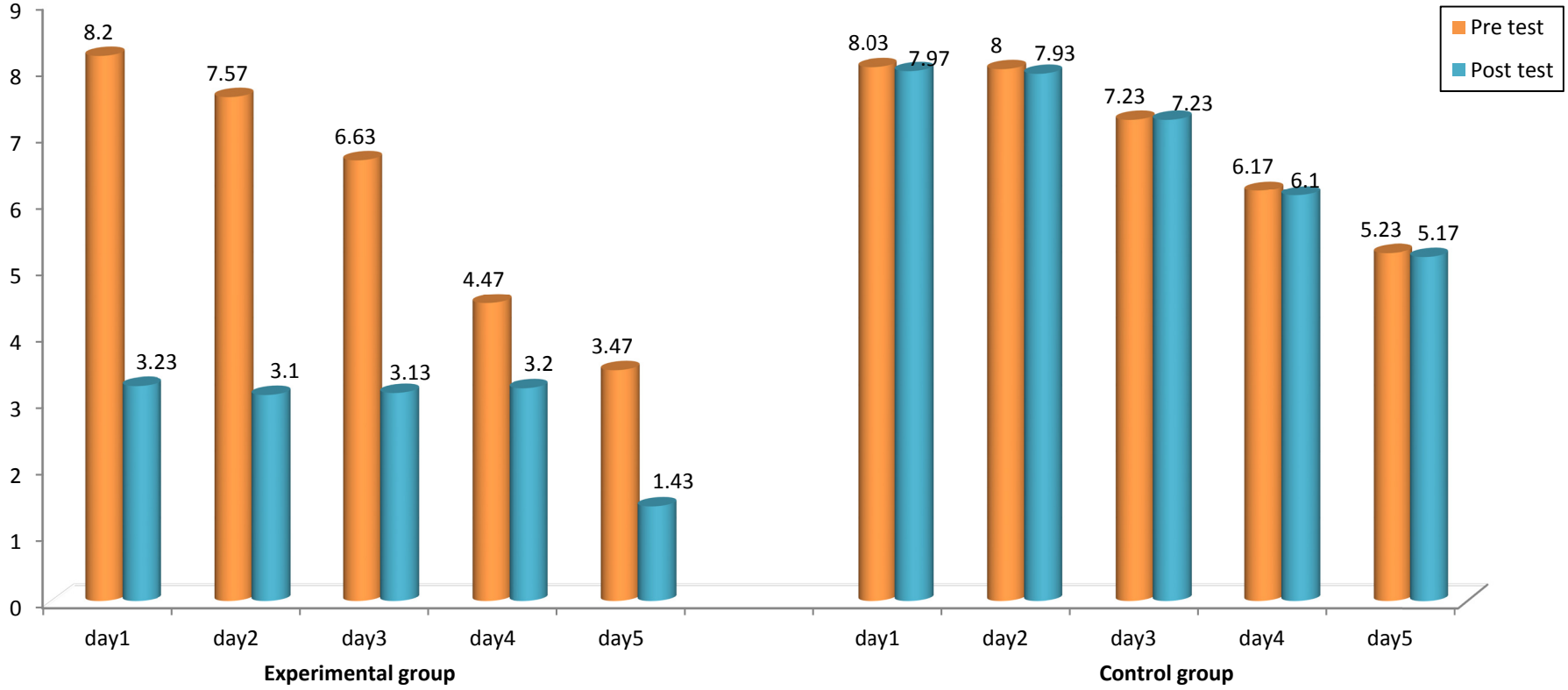


Figure.10; Distribution of mean pre and post test level of pain among post operative caesarean mothers in evening experimental and control group

Table.6: Un Paired 't'-test of post test level of pain among post operative caesarean mothers morning and evening control and experimental group.

N= (30+30)

Level of pain	Control post test		Experimental post test		Mean difference	't'-value
	Mean	SD	Mean	SD		
Morning;						
1st day	8.4	0.56	4.2	1.38	4.2	**15.48*** **
2nd day	7.67	0.84	4.13	1.28	5.9	**12.62*** **
3rd day	6.93	0.98	4.6	0.72	2.33	**10.48*** **
4th day	5.4	0.97	3.23	0.68	2.17	**10.03*** **
5th day	4	0.64	2.17	0.87	1.83	**9.25*** **
Evening;						
1st day	7.97	1.03	3.23	1.13	4.73	**16.88*** **
2nd day	7.93	1.04	3.1	1.21	4.83	**16.51*** **
3rd day	7.23	1.01	3.13	1.11	4.1	**15.01*** **
4th day	6.1	0.84	3.2	0.66	2.9	**14.77*** **
5th day	5.17	0.83	1.43	0.68	3.73	**19.01*** **

(* P<0.001 highly significant)**

The above table shows that in morning session calculated 't' test value for 1st day pain was15.48, 2nd day pain was 12.62, 3rd day pain was10.48, 4th day pain was 10.03 and 5th day pain was 9.25. Overall 5 days 't' test values are highly significant at P<0.001 level.

In evening session calculated 't' test value for 1st day pain was16.88, 2nd day pain was 16.51, 3rd day pain was15.01, 4th day pain was 14.77 and 5th day pain was 19.01. Overall 5 days 't' test values are highly significant at P<0.001 level.

Hence H_2 is accepted. It can be concluded that foot reflexology was effective in reducing the post operative pain among post operative cesarean mothers.

SECTION.IV: Data on association between the level of pain among post operative caesarean mothers in control group and their selected demographic variables

Table.7: Frequency and percentage distribution of chi-square value on control group

N=30

Demographic variables	Moderate		Severe		χ^2 Value
	f	%	f	%	
1.Age of the mother:					
a) 16-20 years	0	0	4	13.3	
b) 21-25 years	2	6.7	18	60	NS 1.07
c) 26-30 years	0	0	6	20	
d) Above 30 years	0	0	0	0	
2.Religion :					
a) Hindu	1	3.3	26	86.7	
b) Muslim	0	0	1	3.3	6.48*
c) Christian	1	3.3	1	3.3	
d) Any other	0	0	0	0	
3.Educational Status:					
a) Illiterate	0	0	0	0	
b) Primaryeducation	0	0	10	33.3	NS 1.68
c) Higher secondary	1	3.3	13	43.3	
d) Graduates	1	3.3	5	16.7	
4.Occupation:					
a) House wife	1	3.3	21	70	
b) Private employee	0	0	6	20	14.65**
c) Govt employee	0	0	1	3.3	
d) Self employee	1	3.3	0	0	
5.Income of the family:					
a) Below 3000	0	0	1	3.3	NS 1.07
b) 3001-6000	0	0	7	23.3	
c) 6001-9000	2	6.7	18	60	
d) More than 9000	0	0	2	6.7	
6.Number of previous deliveries:					
a) None	1	3.3	16	53.3	NS 0.038
b) One	1	3.3	12	40	
c) Two	0	0	0	0	
d) Three	0	0	0	0	

7.Number of previous caesarean section:					
a) None	1	3.3	20	66.7	NS 0.408
b) One	1	3.3	8	26.7	
c) Two	0	0	0	0	
d) Three	0	0	0	0	

(*-P<0.05, significant and **-P<0.01 & ***-P<0.001, Highly significant)

The above table shows that there is a significant association between the level of pain among post operative caesarean mothers and their demographic variables such as religion at p<0.05 level and occupation at p<0.01 level. Hence research hypothesis H_3 is retained for religion and occupation in control group.

There was no significant association between the level of post operative pain among post operative caesarean mothers and their demographic variables such as Age,, Educational status, Income of the family, Number previous deliveries and Number previous caesarean section

SECTION.V:Data on association between the level of pain among post operative caesarean mothers in experimental group and their selected demographic variables.

Table.8: Frequency and percentage distribution of chi-square value on experimental group N=30

Demographic variables	Moderate		Severe		χ^2 Value
	f	%	f	%	
1.Age of the mother:					
a) 16-20 years	0	0	7	23.3	NS 0.791
b) 21-25 years	1	3.3	16	53.3	
c) 26-30 years	0	0	6	20	
d) Above 30 years	0	0	0	0	
2.Religion :					
a) Hindu	1	3.3	26	86.7	NS 0.115
b) Muslim	0	0	3	10	
c) Christian	0	0	0	0	
d) Any others	0	0	0	0	
3.Educational Status:					
a) Illiterate	0	0	1	3.3	NS 1.55
b) Primary education	0	0	10	33.3	
c) Higher secondary	1	3.3	11	36.7	
d) Graduates	0	0	7	23.3	
4.Occupation:					
a) House wife	1	3.3	23	76.7	NS 0.26
b) Private employee	0	0	3	10	
c) Government employee	0	0	0	0	
d) Self employee	0	0	3	10	
5.Income of the family:					
a) Below 3000	0	0	1	3.3	NS 1.35
b) 3001-6000	0	0	11	36.7	
c) 6001-9000	1	3.3	12	40	
d) More than 9000	0	0	5	16.7	

6.Number of previous deliveries:					
a) None	1	3.3	23	76.7	
b) One	0	0	6	20	0.26 NS
c) Two	0	0	0	0	
d) Three	0	0	0	0	
7.Number of previous caesarian section:					
a) No	1	3.3	24	80	
b) One	0	0	5	16.7	0.21 NS
c) Two	-	-	-	-	
d) Three	-	-	-	-	

(*-P<0.05, significant and **-P<0.01 & ***-P<0.001, Highly significant)

The above table shows that there was no significant difference between level of post operative pain among post operative caesarean mothers and their demographic variables such as Age, Religion, Educational status, Occupation, Income of the family, Number previous deliveries and Number previous caesarean section in the experimental group.

Hence research hypothesis H_3 will be partially accepted.

CHAPTER - V

DISCUSSION

CHAPTER V

DISCUSSION

This study was conducted to evaluate the effectiveness of foot reflexology on reduction of post operative pain among post operative caesarean mothers at selected hospitals in Dindigul district.

The discussion was based on the objectives specified in this study.

The first objective were to assess the pre test and post test level of post operative pain among postoperative caesarean mothers in control group and Experimental group.

The above table shows that in morning control group the pre-test scores on the day 1 level of pain were 30(100%)had severe pain respectively. Whereas in post-test scores also 30(100%) had severe pain. Pre test score on the day 2 level of pain were 30(100%) had severe pain. Whereas in post test scores on the level of pain were29(96.7%)had severe pain 1(3.3%) had moderate pain. Pretest scores on the day 3 level of pain were 10(33%) had moderate pain,20(67%)had severe pain. whereas in post test scores on the level of pain10(33%)had severe pain,20(67%)had moderate pain. . Pre test score on the day 4 level of pain were 5(16.7%)had severe pain,24(80%)had moderate pain,1(3.3%)had mild pain. Whereas in post test scores on the level of pain were 1(3%) had mild pain,25(83.4%) had moderate pain and4(13.3%)had severe pain. Pre test score on the day 5 level of pain were 26(87%) had moderate pain, 4(13%)were mild pain. Whereas in post test scores on the level of pain were 6(20%) had mild pain,27(80%) had moderate pain.

In evening control group the pre-test scores on the day 1 level of pain were 28(93.3%)had severe pain,2(6.7%) had moderate pain respectively. Whereas in post-test scores on the level of pain26(87%) had severe pain, 4(13%) had moderate pain respectively. Pre test score on the day 2 level of pain were 27(90%) had severe pain, 3(10%) had moderate pain. Whereas in post test scores on the level of pain were 26(86.6%)had severe pain, 4(13.3%) had moderate pain. Pretest scores on the day 3 level of pain were 7(23%) had moderate pain, 23(77%) had severe pain. whereas in post test scores on the level of pain22 (73%) had severe pain, 8(27%) had moderate pain. Pre test score on the day 4 level of pain were 10(33%)had severe pain, 20(67%) had moderate pain. Whereas in post test scores on the level of pain were 1(3%) had severe pain, 29(97%) had moderate pain. Pre test score on the day 5 level of pain were 2(7%) had severe pain, 27(90%) had moderate pain and 1(3%) had mild pain. Whereas in post test scores on the level of pain were1 (3%) had mild pain, 27(90%) had moderate pain and 2(7%) had severe pain.

In morning experimental group the pre-test scores on the day 1 level of pain were 30(100%) had severe pain respectively. Whereas in post-test scores on the level of pain 10(33%) had mild pain, 20(67%) had moderate respectively. Pre test score on the day 2 level of pain were 30(100%) had severe pain. Whereas in post test scores on the level of pain were 8(27%) had mild pain, 21(70%) had moderate pain and 1(3%) had severe pain. Pretest scores on the day 3 level of pain were 20(67%) had moderate pain, 10 (33%) had severe pain, whereas in post test scores on the level of pain 1(3%) had mild pain,29(97%)had moderate pain. . Pre test score on the day 4 level of pain were 1(3%) had severe pain, 28(93%) had moderate pain, 1(3%) had mild pain. Whereas in post test scores on the level of pain were 19(63%) had mild pain, 11(37%) had moderate pain. Pre test score on the day 5 level of pain were 15(50%) had

moderate pain, 15(50%) were mild pain. Whereas in post test scores on the level of pain were 1(3%) had no pain, 27(90%) had mild pain, 2(7%)had moderate pain.

In evening experimental group the pre-test scores on the day 1 level of pain were 29(97%)had severe pain, 1(3%)had moderate pain respectively. Whereas in post-test scores on the level of pain10 (33%)had moderate pain, 20(67%) had mild pain respectively. Pre test score on the day 2 level of pain were 29(97%) had severe pain, 1(3%)had moderate pain. Whereas in post test scores on the level of pain were 8(27%) had moderate pain, 22(73%) had mild pain. Pretest scores on the day 3 level of pain were 13(43%) had moderate pain,17(57%)had severe pain. whereas in post test scores on the level of pain 23(77%)had mild pain,7(23%)had moderate pain. . Pre test score on the day 4 level of pain were 26(87%)had moderate pain,4(13%)had mild pain. Whereas in post test scores on the level of pain were 20(67%) had mild pain,10(33%) had moderate pain. . Pre test score on the day 5 level of pain were 13(10%) had moderate pain, 27(90%)were mild pain. Whereas in post test scores on the level of pain were 3(10%) had no pain,27(90%) had mild pain.

The above findings consistent with the finding of the randomized double blinded study conducted by Sondra vander Vaart (2014) to determine effect of distant Reiki in reducing pain after elective caesarean section.80 samples were participated in this study, whereas 40-control group,40 –experimental group. Pain was assessed using a visual analogue scale (VAS). The intervention group received usual care plus 3 distant Reiki sessions, one each morning about 30 minutes. After analysis of data distant reiki group had 52%in perceiving pain whereas in control group 55% in perceiving pain. This suggests that the therapeutic benefit of Reiki for pain observed.

The above findings consistent with the finding of the observational study conducted by Ismail et al (2012) to assess the effectiveness of postoperative pain management of patients undergoing elective cesarean section in the obstetric unit of hospital, USA. 263 samples were selected by using convenient sampling. One hundred and eleven patients (42%) received general anesthesia while 152 patients (57%) received spinal anesthesia for elective cesarean section. The postoperative analgesia regime was started by the obstetric team in 81% of patients and in rest by the anesthesia team. The pain management was done by obstetric team in 94% and rest by the acute pain management service. Analysis of overall pain score since the time of surgery showed mild pain (VAS 0–3) in 89.7%, moderate pain (VAS 4–6) in 9.5%, and severe pain (VAS 7–10) in 0.8% of patients at rest. On movement, pain score was mild in 60.1%, moderate in 33.1%, and severe in 6.8% of patients. Study concluded that the postoperative pain management was adequate in terms of patients' safety, it was not effective. We recommended expanding the services of acute pain services

The second objective of the study was to evaluate the effectiveness of foot reflexology on reduction of post operative pain among post operative caesarean mothers in experimental group.

In the morning experimental group calculated 't' test value for 1st day pain was 21.39, 2nd day pain was 14.84, 3rd day pain was9.95, 4th day pain was 8.80 and 5thday pain was 11.37. Overall 5 days 't' test values are highly significant at $P<0.001$ level. Hence H_1 is accepted.

In the morning control group calculated 't' test value for 1st day pain was 1.43, 2nd day pain was 1.79, 3rd day pain was1, 4th day pain was1.79. Overall 4 days 't' test values are not significant at P<0.001 level. Only 5th day pain was 2.11, significant atP<0.05.

In the evening experimental group calculated' test value for 1st day pain was 30.56, 2nd day pain was 17.69, 3rd day pain was12.04, 4th day pain was 7.35 and 5th day pain was 13.09. Overall 5 days't' test values are highly significant at P<0.001 level. Hence H_1 is accepted. It can be concluded that foot reflexology was effective in reducing the post operative pain among post operative cesarean mothers.

In the evening control group calculated 't' test value for 1st day pain was 1.439, 2nd day pain was 1.43, 3rd day pain was1, 4th day pain was1.439 and 5th day pain was1.43. Overall 5 days 't' test values are not significant at P<0.001 level. It can be concluded that there is no much difference in pretest and post test in control group.

In comparison of morning and evening experimental and control group calculated't' test values for 5days are highly significant at P<0.001 level. Hence H_1 is accepted..

It can be concluded that foot reflexology was effective in reducing the post operative pain among post operative cesarean mothers.

The above findings consistent with the finding of the quasi experimental study conducted by Jipi Varghese (2014) to determine the effect of foot reflexology on intensity of pain and quality of sleep in post caesarean mothers. Samples were 60 post caesarean section mothers .30 Subjects each were assigned randomly to either an

experimental or a control group. Intervention group received a single 15-minute foot reflexology. After 5 days of treatment, intensity of pain was measured by visual analogue scale (VAS). The post test mean score of pain of an experimental group (47.5%) was significantly lower than of a control group (76.5%). Also, there was a significant difference between groups in terms of the pain intensity and requesting for analgesic ($p < .001$). The results proved that the foot reflexology was effective in reducing the post operative pain among post caesarean mothers.

The above findings consistent with the finding of the quasi experimental study conducted by Sachitha preema fernandas(2013) to assess the effectiveness of foot reflexology on post operative mothers in maternity hospital, Mangalore. An evaluative approach was used for the study. The sample consisted of 60 post caesarean mothers by simple random sampling technique and assign 30 samples each into experimental & control group. Pain assessed by numerical pain rating scale. Foot reflexology was provided 15 minutes each day after 8 hours of administration of analgesics for 5 days. After analysis the results shows that on the 1st day pre test in the experimental group majority 29(96.7%) of the subjects had severe pain,1(3.3%)had moderate pain which was reduced after foot reflexology to 22(73.3%)had moderate pain and(26.7%).the results proved that the foot reflexology was effective in reducing the post operative pain among post caesarean mothers.

The third objective of this study was to associate the level of post operative pain among post operative caesarean mothers and their selected demographic variables

There was a significant difference between the level of post operative pain among post operative caesarean mothers and their demographic variables such as

religion at $p<0.05$ level and occupation at $p<0.01$ level. hence research hypothesis H_3 is retained for religion and occupation in morning control group.

There was no significant difference between level of post operative pain among post operative caesarean mothers and their demographic variables such as Age, Religion, Educational status, Occupation, Income of the family, Number previous deliveries and Number previous caesarean section in the morning and evening experimental group and also evening control group. Hence research hypothesis H_3 partially accepted.

The above findings consistent with the finding of the quasi experimental study conducted by Sunila Thottingal (2013)conducted a study to assess the effect of foot reflexology on pain and discomfort of mothers after caesarean section in Bangalore. The sample size consisted of 60 mothers who have undergone caesarean section.. After data analysis the results shows that paired t test score 14.26(95%) shows that there is significant difference between pre test and post test pain score at 0.05 level. There was no significant association pre test pain scores and selected demographic variables. Over all findings has shown that foot reflexology was effective in reducing pain and discomfort of mothers who have undergone caesarean section.

CHAPTER – VI

SUMMARY AND RECOMMENDATIONS

CHAPTER - VI

SUMMARY AND RECOMMENDATIONS

This chapter deals with the summary and conclusion. It focuses on the implications and gives recommendations for Nursing practices, Nursing research, Nursing administration, and nursing education.

SUMMARY:

The purpose of the study was "to evaluate the effectiveness of foot reflexology on reduction of post operative pain among post operative caesarean mothers in selected hospitals at Dindigul district".

The objectives of the study were;

1) To assess the pre and post test level of post operative pain in post operative caesarean mothers among experimental & control group.
2) To evaluate the effectiveness of foot reflexology among post operative caesarean mothers in experimental group.
3) To find out the association between the effectiveness of foot reflexology on post operative pain among post operative caesarean mothers and their selected demographic variables.

The design of the study was Quasi experimental non equivalent control group pretest post test design..The conceptual frame work based on gate control theory of pain. The gate control theory first postulated by Ronald Melzack and Patrick David Wall in 1965. This theory suggests that for pain to pass through the gate there must be unopposed passage for nociceptive information. The pain impulses will be carried out by the small diameters and it will open the pain gate and the person feels pain.. Many

non- pharmacological procedures such as reflexology (application of pressure), TENS stimulate the nerve endings connected with large diameter fibres which can produce a reduction of pain by closing the pain gate.

The sample size consists of 60 post operative caesarean mothers who are in 1-5th post operative days at selected hospitals in Dindigul district. 30 samples will be assigned for the experimental group and 30 for the control group. Pre test data was collected by the researcher using visual analogue scale (wong baker scale) for both groups. Experimental group received intervention of foot reflexology for 15 minutes twice a day with a daily routine care for 5consecutive days. Control group received routine care without intervention. Post test was conducted by the researcher for both groups using the same scale on the day after administration of foot reflexology. The data were analyzed using both descriptive and inferential statistics.

MAJOR FINDINGS OF THE STUDY:

- In experimental group, majority 17(56.7%) of the post operative mother belonged to the age group of 21-25 years,27 (90%) of them belonged to Hindu religion, 12(40%) of them had higher secondary education, 24(80%) were housewives, 13(43.3%) of them monthly income 6001-9000, 24(80%) samples had no experience of delivery in the past, 25(83.3) samples had no experience of caesarean section in the past.
- In control group, majority 20(66.7%) of the post operative mother belonged to the age group of 21-25 years,27 (90%) of them belonged to Hindu religion, 14(46.7%) of them had higher secondary education, 22(73.3%) were housewives,20(66.7%) of them monthly income 6001-9000, 17(56.7%)

samples had no experience of delivery in the past, 21(70%) samples had no experience of caesarean section in the past.

- Level of post operative pain in morning control group the pre-test scores on the day 1 level of pain were 30(100%)had severe pain respectively. Whereas in post-test scores also 30(100%) had severe pain. Pre test score on the day 2 level of pain were 30(100%) had severe pain. Whereas in post test scores on the level of pain were 29(96.7%)had severe pain 1(3.3%) had moderate pain. Pretest scores on the day 3 level of pain were 10(33%) had moderate pain,20(67%)had severe pain. whereas in post test scores on the level of pain10(33%)had severe pain,20(67%)had moderate pain. . Pre test score on the day 4 level of pain were 5(16.7%)had severe pain,24(80%)had moderate pain,1(3.3%)had mild pain. Whereas in post test scores on the level of pain were 1(3%) had mild pain,25(83.4%) had moderate pain and4(13.3%)had severe pain. Pre test score on the day 5 level of pain were 26(87%) had moderate pain, 4(13%)were mild pain. Whereas in post test scores on the level of pain were 6(20%) had mild pain,27(80%) had moderate pain.
- Level of pain in evening control group the pre-test scores on the day 1 level of pain were 28(93.3%)had severe pain,2(6.7%) had moderate pain respectively. Whereas in post-test scores on the level of pain 26(87%) had severe pain, 4 (13%) had moderate pain respectively. Pre test score on the day 2 level of pain were 27(90%) had severe pain, 3(10%) had moderate pain. Whereas in post test scores on the level of pain were 26(86.6%) had severe pain, 4(13.3%) had moderate pain. Pretest scores on the day 3 level of pain were 7(23%) had moderate pain, 23(77%) had severe pain. whereas in post test scores on the level of pain22 (73%) had severe pain, 8(27%) had moderate pain. Pre test

score on the day 4 level of pain were 10(33%) had severe pain, 20(67%) had moderate pain. Whereas in post test scores on the level of pain were 1(3%) had severe pain, 29(97%) had moderate pain. Pre test score on the day 5 level of pain were 2(7%) had severe pain, 27(90%) had moderate pain and 1(3%) had mild pain. Whereas in post test scores on the level of pain were1 (3%) had mild pain, 27(90%) had moderate pain and 2(7%) had severe pain.

- Level of pain in morning experimental group the pre-test scores on the day 1 level of pain were 30(100%) had severe pain respectively. Whereas in post-test scores on the level of pain 10(33%) had mild pain, 20(67%) had moderate respectively. Pre test score on the day 2 level of pain were 30(100%) had severe pain. Whereas in post test scores on the level of pain were 8(27%) had mild pain, 21(70%) had moderate pain and 1(3%) had severe pain. Pretest scores on the day 3 level of pain were 20(67%) had moderate pain, 10 (33%) had severe pain, whereas in post test scores on the level of pain 1(3%) had mild pain, 29(97%) had moderate pain. . Pre test score on the day 4 level of pain were 1(3%) had severe pain, 28(93%) had moderate pain, 1(3%) had mild pain. Whereas in post test scores on the level of pain were 19(63%) had mild pain, 11(37%) had moderate pain. Pre test score on the day 5 level of pain were 15(50%) had moderate pain, 15(50%) were mild pain. Whereas in post test scores on the level of pain were 1(3%) had no pain, 27(90%) had mild pain, 2(7%) had moderate pain.
- Level of pain in evening experimental group the pre-test scores on the day 1 level of pain were 29(97%)had severe pain, 1(3%)had moderate pain respectively. Whereas in post-test scores on the level of pain10 (33%)had moderate pain, 20(67%) had mild pain respectively. Pre test score on the day 2

level of pain were 29(97%) had severe pain, 1(3%)had moderate pain. Whereas in post test scores on the level of pain were 8(27%) had moderate pain, 22(73%) had mild pain. Pretest scores on the day 3 level of pain were 13(43%) had moderate pain,17(57%)had severe pain. whereas in post test scores on the level of pain 23(77%)had mild pain,7(23%)had moderate pain. . Pre test score on the day 4 level of pain were 26(87%)had moderate pain,4(13%)had mild pain. Whereas in post test scores on the level of pain were 20(67%) had mild pain,10(33%) had moderate pain. . Pre test score on the day 5 level of pain were 13(10%) had moderate pain, 27(90%)were mild pain. Whereas in post test scores on the level of pain were 3(10%) had no pain,27(90%) had mild pain.

- The finding reveals that the levels of post operative pain among post operative caesarean mothers were decreased in experimental group than control group.
- In the morning experimental group calculated 't' test value for 1st day pain was 21.39, 2nd day pain was 14.84, 3rd day pain was9.95, 4th day pain was 8.80 and 5th day pain was 11.37. Overall 5 days 't' test values are highly significant at $P<0.001$ level. Hence H_1 is accepted. It can be concluded that foot reflexology was effective in reducing the post operative pain among post operative cesarean mothers.
- In the morning control group calculated 't' test value for 1st day pain was 1.43, 2nd day pain was 1.79, 3rd day pain was1, 4th day pain was1.79. Overall 4 days 't' test values are not significant at $P<0.001$ level. Only 5th day pain was 2.11 ,significant at $p<0.05$. It can be concluded that there is no much difference in pretest and post test in level of pain in the post operative mothers in the control group.

- In the evening experimental group calculated' test value for 1st day pain was 30.56, 2nd day pain was 17.69, 3rd day pain was12.04, 4th day pain was 7.35 and 5th day pain was 13.09. Overall 5 days't' test values are highly significant at P<0.001 level. Hence H_1 is accepted. It can be concluded that foot reflexology was effective in reducing the post operative pain among post operative cesarean mothers.
- In the evening control group calculated 't' test value for 1st day pain was 1.439, 2nd day pain was 1.43, 3rd day pain was1, 4th day pain was1.439 and 5th day pain was1.43. Overall 5 days 't' test values are not significant at P<0.001 level. It can be concluded that there is no much difference in pretest and post test in control group.
- In comparison of morning and evening experimental and control group calculated't' test values for 5days are highly significant at P<0.001 level. Hence H_1 is accepted. It can be concluded that foot reflexology was effective in reducing the post operative pain among post operative cesarean mothers.
- There was a significant difference between the level of post operative pain among post operative caesarean mothers and their demographic variables such as religion at p<0.05 level and occupation at p<0.01 level. Hence research hypothesis H_3 is retained for religion and occupation in morning control group.
- There was no significant difference between level of post operative pain among post operative caesarean mothers and their demographic variables such as Age, Religion, Educational status, Occupation, Income of the family,

Number previous deliveries and Number previous caesarean section in the morning and evening experimental group and also evening control group.

Hence research hypothesis H_3partially accepted.

This study was conducted to assess the effectiveness of foot reflexology on reduction of pain among post operative caesarean mothers selected hospitals at Dindigul district. The findings revealed that foot reflexology was effective in reducing post operative pain among post operative caesarean mothers.

IMPLICATIONS:

. The findings of the study have several implications in following field. It can be discussed in four areas namely Nursing practice, Nursing administration, Nursing education and Nursing research.

NURSING PRACTICE;

- Complementary therapies can provide effective economical, non invasive ,non pharmacological complements to medical care.
- Foot reflexology is one of touch therapy, which in this study has proved effective in reducing the post operative pain among post caesarean mothers.
- Nurses can adopt simple interventions like foot reflexology while providing care for the post operative mothers.
- Foot reflexology used in this study can be applied in the practice set up; there by increasing the nursing practice based on evidence.

NURSING ADMINISTRATTION:

- Nurse administrators have a main role in planning the policies and procedures to ensure that the student and practicing nurse are well equippedwith the knowledge and skill.

- The findings of this study will help nurse administrator to plan and organize various in service programmers like in service education, continuing nursing education and workshop on foot reflexology and its effects on caesarean section mothers.
- Nurses may empower with facilities to use complementary and alternative medicine.
- The nurse administrator can take part in developing protocols and standing orders related to foot reflexology.

NURSING EDUCATION;

- Several implications can be drawn from the present study for nursing education.
- The curriculum incorporating the recent trends and demands of the changing societyis needed for the progress of nursing education.
- Practical hours for complementary and alternative medicine including yoga,massage,reflexology can be included in the nursing curriculum which will help the students to improve their skills

NURSING RESEARCH;

- It is essential for the nurses to conduct research as various aspects of pain management in mothers who have undergone caesarean section.
- Research can be conducted to find out the effectiveness of various non pharmacological methods in pain management in caesarean mothers.

LIMITATIONS

- Intervention was limited to 15 minutes.
- Study was conducted only on post operative caesarean mothers.
- Relatively small sample size.
- Study results are limited to Indian population.

RECOMMENDATIONS

- The study can be replicated on a larger sample to generalize the results.
- The comparative study can be conducted with more than one intervention.
- Non pharmacological pain management should be emphasized in nursing. curriculum.
- Training programmers for nurses can be given on complementary therapies.
- Complementary therapy cell -could be arranged at an institution and multidisciplinary team could be introduced.

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APPENDIX

APPENDIX –I

SAKTHI COLLEGE OF NURSING

(Approved by Govt. of Tamilnadu, Recognised by INC, TNC & Affiliated to Dr. M.G.R. Medical University)

Sakthi Nagar, Dindigul - Palani Main Road,
Palakkanuthu - (Po.),
Oddanchatram - 624 619.
Dindigul (Dt.), Tamilnadu.

Phone : 0451 - 2050272
Mobile : 97509 56810
Fax : 0451-2554317
E-mail : sakthinursingcollege@gmail.com

Dr.K.Vembanan, M.B.B.S., M.S.,
Chairman

F-H Permission 2/8/14
Approved
RTO

PERMISSION LETTER

From

The Principal,
Sakthi College of Nursing,
Oddanchatram, Dindigul (Dt)

To

The Medical Supeeintendent,
Christian Fellowship Hospital,
Oddanchatram.

Respected Sir / Madam,

Sub.: Request for permission to conduct research study – reg.

Ms. SHEELA MARY .S is a bonafide M.Sc., Nursing student studying in our college. As a partial fulfillment of The Tamilnadu Dr. MGR Medical University requirement for the award of the M.Sc., Nursing Degree, she is undertaking (A quasi experimental study to evaluate **("THE EFFECTIVENESS OF FOOT REFLEXOLOGY ON REDUCTION OF PAIN AMONG POST OPERATIVE CAESAREAN MOTHERS IN SELECTED HOSPITALS AT DINDIGUL DISTRICT")**, she has identified your centre as the best place to conduct the study.

Further details of the proposed project will be furnished by the student personally. She will not hinder your routine in any way and she will abide to the rules and regulations of the institution. All the information collected from institution will be kept confidential.

I kindly request you to grant her permission to conduct the study at your esteemed institution.

Thanking you,

Yours sincerely,

Date : 30:07:14

Place : Sakthi Nagar

SAKTHI COLLEGE OF NURSING

(Approved by Govt. of Tamilnadu, Recognised by INC, TNC & Affiliated to Dr. M.G.R. Medical University)

Sakthi Nagar, Dindigul - Palani Main Road,
Palakkanuthu - (Po.),
Oddanchatram - 624 619.
Dindigul (Dt.), Tamilnadu.

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Fax : 0451-2554317
E-mail : sakthinursingcollege@gmail.com

Dr.K.Vembanan, M.B.B.S., M.S.,
Chairman

PERMISSION LETTER

From

The Principal,
Sakthi College of Nursing,
Oddanchatram, Dindigul (Dt)

To

The medical officer
K.R hospital,
oddanchatiam.

Respected Sir / Madam,

Sub.: Request for permission to conduct research study – reg.

Ms. SHEELA MARY .S is a bonafide M.Sc., Nursing student studying in our college. As a partial fulfillment of The Tamilnadu Dr. MGR Medical University requirement for the award of the M.Sc., Nursing Degree, she is undertaking (A quasi experimental study to evaluate **("THE EFFECTIVENESS OF FOOT REFLEXOLOGY ON REDUCTION OF PAIN AMONG POST OPERATIVE CAESAREAN MOTHERS IN SELECTED HOSPITALS AT DINDIGUL DISTRICT")**, she has identified your centre as the best place to conduct the study.

Further details of the proposed project will be furnished by the student personally. She will not hinder your routine in any way and she will abide to the rules and regulations of the institution. All the information collected from institution will be kept confidential.

I kindly request you to grant her permission to conduct the study at your esteemed institution.

Thanking you,

Yours sincerely,

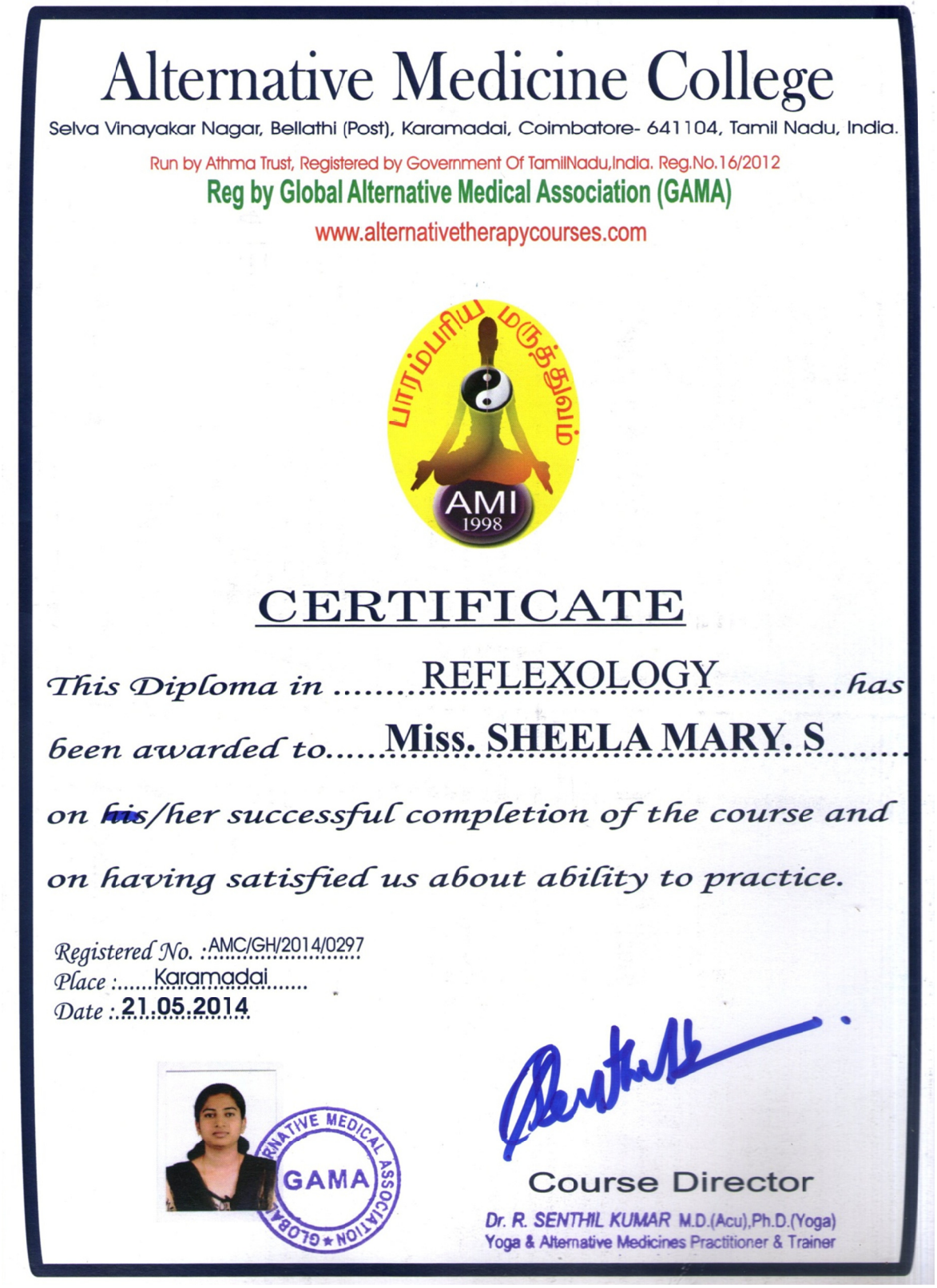
Date : 29/7/14

Place : oddanchatiam

Permitted
29/7/2014
CIVIL ASSISTANT SURGEON.
GOVT. TALUK HQRS HOSPITAL.
ODDANCHATRAM-624 619

APPENDIX-II

Certificate in foot reflexology



Alternative Medicine College

Selva Vinayakar Nagar, Bellathi (Post), Karamadai, Coimbatore- 641104, Tamil Nadu, India.

Run by Athma Trust, Registered by Government Of TamilNadu,India. Reg.No.16/2012

Reg by Global Alternative Medical Association (GAMA)

www.alternativetherapycourses.com

AMI 1998

CERTIFICATE

This Diploma in .....REFLEXOLOGY.....has been awarded to.....Miss. SHEELA MARY. S.....on his/her successful completion of the course and on having satisfied us about ability to practice.

Registered No. :AMC/GH/2014/0297

Place :.....Karamadai.....

Date :.21.05.2014

GAMA

Course Director

Dr. R. SENTHIL KUMAR M.D.(Acu),Ph.D.(Yoga)

Yoga & Alternative Medicines Practitioner & Trainer

APPENDIX - III

CONTENT VALIDITY

From

Ms.Sheelamary.S
M.Sc Nursing IInd Year,
Sakthi College of Nursing.
Oddanchatram, Dindigul.

To

Respected Sir / madam,

Sub:-Requisition from expert opinion and content validity reg.

I am 2nd year MSc Nursing student Sakthi College of Nursing Oddanchattram, Dindigul under Tamilnadu Dr.MGR Medical University.

As a partial fulfillment of M.Sc Nursing Degree program, I am conducting a research study "A study to assess the effectiveness of foot reflexology on reduction of pain among post operative caesarean mothers in selected hospitalsat Dindigul district".

I am sending the research tool for content validity and request you to give your expert and valuable review and opinion. I will be very thankful if you return at the earliest. Here with I have enclosed the necessary documents.

Thanking you.

Enclosed: Yours sincerely.

- Statement of the problem and objectives of the study
- Tool for data collection with scoring key
- Brief note on the research methodology and intervention tool
- Certificated of content validity.

APPENDIX -IV

CERTIFICATE OF CONTENT VALIDITY

TO WHOM SOEVER IT MAY CONCERN

This is to certify that the tool prepared by**Ms.SHEELA MARY.S**, M.Sc(N) II YR student of SakthiCollegeof Nursing for the conduction of the study "**A QUASI EXPERIMENTAL STUDY TO EVALUATE THE EFFECTIVENESS OF FOOT REFLEXOLOGY ON RREDUCTION OF PAIN AMONG POST OPERATIVE CAESAREAN MOTHERS IN SELECTED HOSPITALS AT DINDIGUL DISTRICT**" is valid. She can proceed in conducting the data collection with it.

Place: **Signature**

APPENDIX –V

LIST OF EXPERTIES

1. **Prof.Grace Kingston, M.Sc(N).,Ph.D.,**
   Principal,
   Christian College Of Nursing ,
   Ambilikkai.

2. **Asst. Prof.Abra Pearl, M.Sc (N).,**
   Dept of obstetrics and gynecology,
   Christian College Of Nursing ,
   Ambilikkai.

3. **Asst.Prof.Mrs.Kasthuri, M.Sc (N).,**
   Dept of obstetrics and gynecology,
   Bishop's College of Nursing,
   Dharapuram.

4. **Asst.Prof.Alicesony.M.Sc (N).,**
   Dept of obstetrics and gynecology,
   Christian mission college of nursing
   Vellore.

5. **Mrs.Shylaisia.M.Sc(N).,**
   Dept of obstetrics and gynecology
   Aurobindocollege of nursing,
   Karur**.**

6. **Dr.Paul Emmanuel.M.D,D.G.O.,**
   Christian Fellowship Hospital
   Oddanchatram**.**

7. **Dr. Senthilkumar.M.D.(Accu),Ph.D(yoga).,**
   Alternative Medicine College,
   Karamadai.

APPENDIX –VI

CERTIFICATE OF ENGLISH EDITING

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the dissertation work **"A Quasi experimental study to evaluate the effectiveness of foot reflexology on reduction of pain among post operative cesarean mothers in selected hospitals Dindigul district"** done by Ms.Sheela Mary,II year, M.Sc.(Nursing) student of Sakthi College of Nursing, Dindigul, is edited for English language appropriateness by....A. SATHIYA....MA. M.PHIL. MBA

Seal with Date:

A. Sathiya
Signature.

APPENDIX –VII

CERTIFICATE OF TAMIL EDITING

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the dissertation work **"A Quasi experimental study to evaluate the effectiveness of foot reflexology on reduction of pain among post operative cesarean mothers in selected hospitals Dindigul district"** done by Ms.Sheela Mary,II year, M.Sc.(Nursing) student of Sakthi College of Nursing, Dindigul, is edited for Tamil language appropriateness by..P.SAKTHIVEL..M.A.,A.M.A., M.Ed.,

Seal with Date:

SAKTHI COLLEGE OF ARTS & SCIENCE FOR WOMEN ★ ODDANCHATRAM

Signature.

V.PRINCIPAL
Sakthi College of Arts and Science for Wom...
Sakthi Nagar, Palakkanuthu (Po)
Oddanchatram, Dindigul Dist

APPENDIX-VIII

SECTION – A: DEMOGRAPHIC VARIABLES

Introduction to participants:

Dear participants,

This section consists of the personal information and you are requested to answer the question correctly. The information collected from you will be kept confidential.

Sample no :

1. Age of the mother

a) 16-20years ( )

b) 21- 25 years ( )

c) 26-30 years ( )

d) Above 30years ( )

2.Religion

a) Hindu ( )

b) Muslim ( )

c) Christian ( )

d) Any other(specify) ( )

3. Educational status

a) Illiterate ( )

b) Primary education ( )

c) Higher Secondary education ( )

d) Graduate ( )

3. Occupation

a) House wife ( )

b) Private employee ( )

c) Government employee ( )

d) Self employee ( )

4.Income of the family

a) below3000 ( )

a) 3001-6000 ( )

b) 6001-9000 ( )

c) More than 9000 ( )

5. Number of previous deliveries

a) None ( )

b) One ( )

c) two ( )

d) three ( )

6.Number of previous caesarean section

a) No ( )

b) One ( )

c) two ( )

d) three ( )

பிரிவு- அ

தனிநபர் பற்றிய விபரங்கள்

இந்தப் பகுதியில் உங்களைப் பற்றிய சொந்த விபரங்கள் கொடுக்கப்பட்டுள்ளது. இதற்கு தகுதியான விடையளிக்குமாறு கேட்டுக்கொள்கிறேன். இந்த விபரங்கள் இரகசியமாக வைத்துக் கொள்ளப்படும்.

பங்கேற்பவர்எண் [ ]

1. தாயின் வயது

அ) 16-20 வருடங்கள் ( )

ஆ) 21-25 வருடங்கள் ( )

இ) 26-30வருடங்கள் ( )

ஈ) 30 வருடங்களுக்கு மேல் ( )

2. மதம்

அ) இந்து ( )

ஆ) முஸ்லீம் ( )

இ) கிறிஸ்டியன் ( )

ஈ) மற்றவை ( )

3. கல்வித் தகுதி

அ) படிக்காதவர் ( )

ஆ) ஆரம்பக் கல்வி ( )

இ)உயர்நிலைக் கல்வி ( )

ஈ) பட்டதாரி ( )

4. பணிநிலவரம்

அ) இல்லத்தரசி ( )

ஆ) தனியார்பணி ( )

இ) அரசுப் பணி ( )

ஈ) சுய தொழில் ( )

5.குடும்பவருமானம்

அ) 3000-க்குள் ( )

ஆ) 3001-6000 ( )

இ) 6001-9000 ( )

ஈ) 9000-க்குமேல் ( )

6. முந்தயபிரசவத்தின் எண்ணிக்கை

அ) இல்லை ( )

ஆ) ஒன்று ( )

இ) இரண்டு ( )

ஈ) மூன்று ( )

7. முந்தையஅறுவைச் சிகிச்சைபிரசவத்தின் எண்ணிக்கை

அ) இல்லை ( )

ஆ) ஒன்று ( )

இ) இரண்டு ( )

ஈ) மூன்று ( )

APPENDIX-IX

VISUAL ANALOGUE SCALE

Instruction to the participants

The visual analogue pain scale shown to the participants after the intervention by the investigator to evaluate the intensity post operative caesarean mother's pain.

Description of the tool

This scale is used to evaluate the effectiveness of foot reflexology on post operative caesarean pain among post operative caesarean mothers in selected hospitals at dindigul district.

Visual Analogue Scale(wong baker scale)which consist of 0- 10 score.

WONG BAKERS PAIN ASSESSMENT SCALE

No pain | **Mild,annoying Pain** | **Nagging, uncomfortable Troublesome Pain** | **distressing, miserable, pain** | **Intense, dreadful, horrible pain** | **worst possible, unbearable pain**

The description of facial expressions are;

Facial expressions	Description
Face 0	very happy because she doesn't hurt at all.
Face 1	hurts just a little bit.
Face 2	hurts a little more.
Face 3	hurts even more.
Face 4	hurts a whole lot more.
Face 5	hurts as much as you can imagine, although you do not have to be crying to feel this bad.

SCORING PROCEDURE:

Scoring was given according to the level of pain.

Score	Level of post operative caesarean pain
0	No pain
1-3	Mild pain
4-6	Moderate pain
7-10	Severe pain

The level of post operative pain was assessed before and after intervention.

APPENDIX-X

CONTENT OF REFLEXOLOGY

INTRODUCTION;

Reflexology, which is also known by names like zone therapy, Shiatsu, Pointed pressure therapy, Contact therapy, concentrated massage or acupuncture without needles, is probably the oldest system of natural treatment in the world, based on scientific technique of massage or pressure.

Reflexology is a marvelous system, simple to understand and easy to practice. It is highly effective, completely safe and absolutely scientific.

DEFINITION;

It is afocused pressure technique,usually directed at the hands or feet's. It is based on the premise that there are zones and reflexes on different parts of the body which corresponds to and are relative to all parts,glands and organs of the entire body.

BENEFITS;

- Reduction of pain with the removal of stress.
- Provides relaxation
- Assists the body to normalize the metabolism naturally.
- Complements all other healing modalities.

PHYSIOLOGY OF REFLEXOLOGY;

When the reflexes are stimulated the body's natural electrical energy works along the nervous system to clear any blockages in the corresponding zones. A reflexology

session seems to break up deposits (felt as a sandy or gritty under the skin) which may interfere with the flow of the body's electrical energy in nervous system.

Manipulating specific reflexes removes stress and post operative pain,activating a Para sympathetic response in the body to enable the blockage to be released by a physiological change in the body,with stress removed and circulation enhanced the body is allowed to return to a state of homeostasis.

FOOT REFLEXOLOGY;

A science based on the principle that there are reflex areas in the feet that corresponds to all glands, organs, and parts of the body.

PRINCIPLES:

- The place of treatment should be clean ,well-ventilated, at normal bearable temperature, have soothing and attractive environment which helps to release tension and create a sense of joy, satisfaction and well being.
- Treatment can be given while the subject is lying down in bed in a straight posture or sitting in a chair but in both positions, the patient should feel relaxed.
- While starting the treatment for the first time, the therapist must explain in brief the working of reflexology to the patient, especially the pain factor.
- The therapist must wash his or her hands properly before starting the treatment.
- The therapist must keep the nails of thumbs and fingers short as long nails of thumbs can hurt any of patient's skin. In winter ,while starting the treatment, the therapist must rub his or her hands together briskly warm them to avoid giving feeling of cold touch to patient.

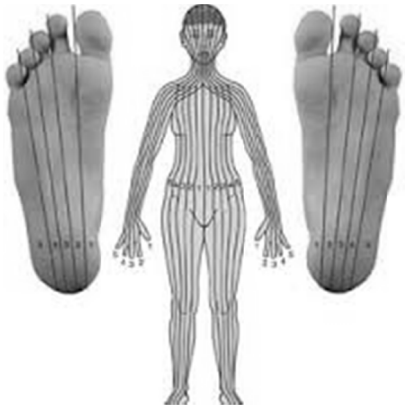
- ❖ Never give treatment when one has a full stomach because in that case the pressure can upset the digestive process. It should preferably be given when one has empty stomach.
- ❖ Do not give reflexology treatment just before or immediately after taking a bath.
- ❖ While treating the particular disease,the emphasize should be on relevant reflex points but in every case ,points concerning nervous system,especially the brain,lymphatic system, circulation and kidneys must be pressed as these tension and purge the body of harmful substances.
- ❖ Keep a daily record of patient experience, feelings, improvement and aggravation of the problem to analyze the progress.

PROCEDURE OF FOOT REFLEXOLOGY;

Reflexology is a non medicinal form of treatment and can be defined as a science of stimulating points a (usually all soles) which have a corresponds or a link with internal organs of the body. Reflexology presumes that no single organ of the body can be healthy or diseased in isolation of rest of the body. It says that treatment should be directed not only at the entire body (by working on the entire areas, the zones of the both feet) indeed such approach has in obtaining better and faster results.

Zone therapy;

Zone therapy is the basis of reflexology; zones are a system for stimulating relationship between various parts of the body. Zone therapy is very simple. According to it, there are ten invisible line force current s massaging through the body from head to feet and hands, in line with all toes and fingers ending in the tips.



The specific area falling under each life force current is called a zone. There are five longitudinal zones on the right side of the body and five longitudinal zones on the left side of the body in equal proportions. All ten zones un parallel over the entire body covering head,hands,chest,abdomen,reproductive organs,legs and feet.

Zone-1

Extends from top of the head to big toes in feet passing through the mid of fore head, nose, palate, lips, chin, chest, spine, abdomen and legs. This zone also goes up to thumbs covering shoulders and arms.zone-1 ,thus feeds a part or entire area of the organs falling in this zone according to their actual position in the body namely head, brain, spine ,nose, mouth, chin, pituitary, pineal thyroid, thymus and adrenal glands, lungs, heart (on the left as well as on right side),ureter, uterus ,sex organs,urinary bladder,rectum and anus.

Zone-2

Comes from the top of the head and runs down to the second toe and likewise up to the tips of first finger. This zone covers certain portion of the brain, eyes, sinuses, tonsils, lungs, bronchial tubes,heart (on right and left,both sides),stomach, liver(on the right side),solar plexus,pancreas(on the left side),kidneys and small intestine.

Zone-3

Emanates from the top of the head and goes up to third toe in feet and also up to third toe in feet and also up to second finger and hands. It includes some portion of the brain, eyes, lungs, heart (on left side), stomach (on left side), solar plexus, pancreas (on left side), liver (on right side), kidneys, and appendix on right side and small intestine on both sides of the body.

Zone-4

Extends from top of the head and goes upto third toe in feet and also up to second finger in hands. This zone feeds certain area in brain,ears, shoulders, lungs, heart (on left side),stomach ,spleen and pancreas (all three on the left side),liver , gall bladder and appendix(all three on the right side) small intestine and colon on both sides.

Zone-5

Moves from top of the head down to little toes and little fingers in feet and hands,respectively. The fifth zone covers the outer side of the head,certain portion of the brain,ears, shoulders,upper arms,spleen (on left side) and colon on both sides.

STEPS IN PROCEDURE;

- Make the patient in lie down in comfortable position with relaxed leg without any stiffening.
- Grasp the foot with both the hands were the thumbs should be on the sole and the fingers behind will be supporting the foot.

- Deep and firm pressure is applied with the fingertips in alternating fashion. The zonal area is pressed –released-pressed- released. Stimulating a pumping action.

- Pressure is applied to every zone from the heel toward the toe, without leaving behind any area of zone, which is continued for 15 minutes.

- Instruct the mother to take a glass of plain water.

APPENDIX –XI

PHOTOS

INVESTIGATOR ASSESSING THE LEVEL OF PAIN

INVESTIGATOR ADMINISTERING FOOT REFLEXOLOGY